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# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

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27 July 1984

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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FIBER OPTIC TELECOMMUNICATIONS LINK PLANNED FOR SYDNEY, MELBOURNE

Canberra THE AUSTRALIAN in English 11 Jun 84 p 13

[Text]

PLANNING is well advanced for an optical fibre telecommunications cable — providing up to an additional 60,000 voice channels — to be laid between Melbourne and Sydney during the next two years.

Announcing the project, Telecom managing director, Bill Pollock, said it was planned for the new cable to be ready for service by January 1988, Australia's bicentennial anniversary.

Using optical fibre technology, Telecom is capable of transmitting large groups of telephone conversations, data and television signals through hair-thin glass fibres as pulses of light.

Future telecommunications traffic growth between Melbourne and Sydney and for major centres along the route could be met ideally by the new optical fibre cable, Mr Pollock said.

"We expect the project to cost more than \$40 million," he said. "It will be a digital system and will complement the present broadband systems operating between the two cities.

Mr Pollock said survey parties had begun working along the route.

Where possible, existing above ground repeater stations would be used for the new cable but because repeaters were not needed as frequently as with the present coaxial cable, only every third repeater shelter would be used in the new system.

The optical fibre cable is immune to power induction, lightning and other electrical interference.

It will contain 30 fibres, giving it facilities for 60,000 voice channels or a combination of voice, data and television traffic at the one time.

The present coaxial cable, brought into service in 1962, provides facilities for only 9000 voice channels.

Telecom's NSW manager, Ken Douglas, said the optical fibre cable would generally run parallel to the existing coaxial cable.

Mr Douglas said the route surveys in NSW had started recently and property owners in districts through which the cable would pass were being approached individually by the survey groups.

Property owners requiring additional information were invited to contact the project manager in NSW, Mr M. Lette, on (02)745 0273.

CSO: 5500/4393

SATELLITE IMAGERY REFERENCE CENTER OPENS

Canberra THE AUSTRALIAN in English 11 Jun 84 p 13

[Text]

THE first Landsat Reference Centre has been established at north Queensland's James Cook University.

The Australian Landsat Station in Canberra has for some years been supplying satellite imagery to Australian users. Now, for the first time, users can inspect Landsat photographs at the centre, set up in the university's Economic Geology Research Unit.

The Townsville centre is the first of a number of such centres to be established across Australia. The brainchild of Professor Bob Carter, head of the Geology Department at James Cook, the strategically placed Landsat Reference Centres will house a comprehensive coverage of Landsat imagery and a full range of sample products that will help direct the user to the Landsat distribution network for the most appropriate Landsat material.

Director of the Australian Landsat Station, Mr Don Gray, said: "We believe the creation of a network of centres will assist in promoting the value of Landsat information in the management of our natural resources."

Professor Carter pointed out that food and agricultural agencies had been using Landsat information to estimate national grain yields before crops ripened.

"Salinity problems and crop diseases are being detected long before they become noticeable to ground-based observers.

"Changing land-use patterns, pollution, flooding and bushfires are often more easily studied from space than from the ground.

"To give another example, Landsat imagery is helping in the immense task of managing and protecting the Great Barrier Reef for future generations."

For the geologist, Landsat gives a broad coverage taking in extensive areas of land, while its resolution is sufficient for the detailed study of rock types. It can discriminate between different rock formations and has led to some major finds for the mining industry.

CSO: 5500/4393

AUSTRALIA

BRIEFS

NEW UNDERSEA CABLE NETWORK--Officials from about 10 countries are meeting in Sydney tomorrow to sign an agreement for construction of a new underseas cable system that will greatly improve telecommunications in Southeast Asia. The cable will run for 2,500 nautical miles from Perth in Western Australia to Jakarta and Singapore. It will connect with cable systems in Malaysia, the Philippines, the Middle East, and Eastern Europe. The cable, to cost about \$180 million, will have more than 10 times the capacity of the cable it is replacing. Australia through its Overseas Telecommunications Commission will pay about half the cost. Telecommunications organizations in Indonesia, Singapore, Hong Kong, Japan, Taiwan, France, West Germany, and the Philippines will pay the rest. Construction of the cable will start early next year and is expected to be operating by late 1986. [Text] [BK201000 Melbourne Overseas Service in English 0830 GMT 19 Jul 84 BK]

CSO: 5500/4395

## ITALIANS OFFER TELECOMMUNICATIONS TECHNOLOGY TRANSFER

Kuala Lumpur BUSINESS TIMES in English 3 Jun 84 pp 1, 24

[Article by Vong Nyam Ming]

[Text]

**SPURRED** by a \$300 million contract with Telecoms, Marconi Italiana yesterday signed an agreement that will take Malaysia out of the soldering iron category of manufacturing into the mainstream as a fully fledged telecommunications equipment maker and regional supplier.

Under the joint venture manufacturing agreement signed with three Malaysian parties, Marconi Italiana will offer the full transfer of technology to its local offspring, Marconi Malaysia Sdn Bhd, and allow full autonomy in terms of purchasing and sales in Asia.

A total R & D laboratory will be set up to support the manufacturing operation in Kedah and to free it from dependence on the technology of its overseas principal.

Ultimately, the R & D laboratory is to allow

Marconi's Malaysian operation to adapt and develop new technology, to let it develop its own technological legs, said Marconi Italiana's board director and head of telecommunications, Dr S. Gualano.

Speaking after the signing of the agreement with two local shareholders yesterday, the Pilgrims Fund Board and Bank Islam, Dr Gualano said that Marconi Malaysia would be one of the first fully fledged telecommunications makers in the region.

Marconi Italiana, with 30 per cent equity, holds the biggest individual block, while the Pilgrims Fund Board has 22.5 per cent, Bank Islam five per cent and Datuk A.P. Arumugam 10 per cent.

It is understood that the Armed Forces Fund has been offered 22.5 per cent equity and Kedah State Economic Develop-

ment Board 10 per cent. The agreement will be signed next month.

Marconi Malaysia has a paid-up capital of \$5 million and an authorised capital of \$15 million.

"The technology which this new company has acquired is of a very advanced nature and it is this factor which would allow export sales and competitiveness on world markets.

"Fifty per cent of the plant's initial production in 1985 is for Jabatan Telekom and the rest for export within the region.

"This is Marconi Italiana's first joint venture in Asia. The decision to invest in Malaysia was made after a three-year evaluation.

"Deciding factors were Malaysia's economic growth, political stability, and the efficiency of the private sector and

government machinery," said Dr Gualano.

"The cost of setting up operations here has the added advantage of relatively cheap financing. Funds here cost about 10 per cent compared to about 17 per cent in Italy," he said.

In the first phase of operations, Marconi Malaysia will manufacture the equipment that it has on long term order from Jabatan Telekom — digital transmission microwave equipment from 2Mbits to 140 Mbits, worth a total of \$300 million.

This will be the building block for the manufacture of high technology telematics equipment and the fabrication of an integrated services digital network later.

When Marconi Malaysia is in full swing, it will

be the first company in Asia able to provide a complete range of telecommunications equipment. Civil works have started and the plant is expected to be commissioned in May next year.

Dr Gualano said: "We want this company to have its own R & D because in this industry, a company without R & D will not succeed and will always depend on someone else. As an industrial and business concern, you have to be autonomous and have your own resources including good engineers.

In anticipation of the scientific requirements, Marconi Italiana S.p.A.

has already offered a \$150,000 a year budget towards a Marconi chair in telematics at the University Teknologi Malaysia.

The production process that Marconi Malaysia will initially employ will be the assembly of components on racks. Imported components will be assembled on boards and these will be inserted in locally fabricated racks.

Setting the production process above a simple soldering iron operation in the first phase of operations, Marconi Malaysia will run complete tests on assembled boards and completed racks.

CSO: 5500/4392

PEOPLE'S REPUBLIC OF CHINA

FUJIAN'S XIANG NAN CHECKS SATELLITE RECEIVER

OW091315 Fuzhou Fujian Provincial Service in Mandarin 1130 GMT 7 Jul 84

[Text] According to a dispatch from reporter (Du Zeyi) of the Central People's Broadcasting Station, the prototype K-band satellite radio and television receiving equipment with 3-meter antennas developed by a number of research institutes and factories of China's electronics industry is of high quality. The major specifications of this equipment meet international standards, this reporter learned at the national meeting to compare and assess prototype satellite radio and television receiving equipment held in Fuzhou today.

The meeting is held to evaluate the quality and finalize the design of satellite radio and television ground receiving equipment developing in China. The quality of the signals received shows that the receiving equipment developed in China meets the generally designed standards. The quality of both video and audio signals is much better than that of signals received by means of 15-meter antennas and related satellite ground receiving stations.

Those attending the meeting held: The ground receiving equipment successfully developed in China can be easily installed. Maintenance and operation of the equipment are quite simple. It is small in size and low in price. Meeting China's own requirements, it can be readily popularized.

The national meeting to compare and assess prototype satellite radio and television receiving equipment is sponsored by the Ministry of Electronics Industry. On the evening of 6 July, First Secretary Xiang Nan and other leading comrades of the provincial CPC Committee met with those attending the meeting and listened to a report. They also watched a television program received through the satellite. Also present at the meeting were Wei Mingyi, vice minister of the electronics industry; (Lo Keqin), adviser to the Ministry of Radio and Television; and others.

CSO: 5500/4136

PEOPLE'S REPUBLIC OF CHINA

BRIEFS

NEI MONGGOL TELEVISION BUILDING--The preparations for the construction of the Nei Monggol Regional Color Television Central Building are more or less completed and the construction will begin soon. This 17-story building is 80.1 meters high and covers a 20,000-square-meter building area. This building will undertake the following three services: 1) Through microwave and direct broadcast antennas, receiving and relaying the programs of the Central TV Station; 2) broadcasting back a television programs set to the Central TV Station; and 3) undertaking the production, broadcasting, and storage work of the Nei Monggol television programs. This project will be basically completed by the end of 1986 and be in operation in 1987 on occasion of the 40th anniversary of the founding of Nei Monggol Region. [Summary] [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 23 Jun 84 SK]

NEW SATELLITE RECEIVING EQUIPMENT DEVELOPED--Fuzhou, 11 July (XINHUA)--China has succeeded in developing 11 prototypes with the K frequency band (from 11,700 to 12,200 megahertz) for receiving radio and television programs broadcast through satellite, the latest technology in receiving radio and television programs via satellite. Developed by factories and research institutes under the Ministry of Electronics Industry, the receivers have antennas with diameters ranging from 1.8 to five meters, according to a recent national appraisal meeting here. The pictures are clear and stable, with high fidelity and good color and sound. Small in size and light in weight, the new receivers are handy to install and use. The development of the new equipment is part of the country's effort to improve radio and television service. At present, China's Central Television programs are relayed by microwaves or transmitted by local stations to remote parts of the country. China launched its first experimental telecommunications satellite on 8 April this year. [Text] [OW111535 Beijing XINHUA in English 1437 GMT 11 Jul 84]

YANTAI TV STATION BEGINS SERVICE--Yantai Television Station formally began to transmit television programs on 30 June. Preparations for the construction of this station were started last September. An inaugural meeting to mark the establishment of the radio and television stations was held on 30 June. Liang Buting, secretary of the provincial CPC committee and provincial governor, Lu Maozeng, deputy secretary of the provincial CPC committee, representatives of the Ministry of Radio and Television and the provincial radio and television department, and responsible comrades of the Yantai City party, government, and army organs attended the meeting. The Yantai Television Station will use frequency channel 12 to transmit programs. Yantai news program and programs on special topics, literature, and art will be transmitted on a trial basis every Monday, Wednesday, and Friday. Programs of the Central Television Station will be relayed every Tuesday, Thursday, Saturday, and Sunday. [Text] [SK020443 Jinan Shandong Provincial Service in Mandarin 2300 GMT 30 Jun 84]

CSO: 5500/4135

PHILIPPINES

OFFICIAL HITS 'COLONIAL JOURNALISM' AT UN SESSION

Manila BULLETIN TODAY in English 23 Jun 84 p 28

[Text]

UNITED NATIONS  
— Philippine Minister of State for Information Jose T. Tumbokon declared that "the balancing of news and information flow worldwide" will be a top priority of Third World efforts to strip the system with colonial features.

Tumbokon, a delegate to the UN committee on information session, said the main thrust would answer developing nations' chief complaint that their bids to correct inaccurate reports about themselves have always been "muffled by the more massive and sophisticated wire agencies of the West."

"The victims of colonial journalism, mostly small and emerging nations, have consistently registered their protest in recent years," he said, "and in this session, the Philippines will again be in the forefront of recast-

ing an obsolete, unbalanced system."

He revealed the Philippines would favor, among other things, renewed UN support and encouragement to the setting up of a news exchange network in a regional basis as an initial step towards a global dimension.

"Happily, concrete steps have already been taken by a good number of concerned Asian nations towards a regional network and I, for one, have all the reasons to hope that the UN, which is dedicated to ennobling the human spirit, would not yield to the machinations of powerful nations to sabotage the ongoing project but instead inspire and help them perfect it," he said.

Philippine Ambassador Luis Moreno-Salcedo is the chairman of the UN information committee since last year, while

Tumbokon at that time took over as sit-in head of the Philippine panel in the committee.

CSO: 5500/4394

## INTERNATIONAL AFFAIRS

### RECENT TELECOMMUNICATIONS DEVELOPMENTS DESCRIBED

#### CEMA Joint Communications System

Warsaw KURIER POLSKI in Polish 28 May 84 pp 1,2

[Interview with Prof Wladyslaw Majewski, minister of communications, by Pawel Ziolkowski: "The Theme Was a Common CEMA Telecommunications Net"; time and place not given]

[Text] [Question] The 25th session of CEMA Permanent Communications Commission ended on Saturday. The CEMA ministers of communications participated and you were the host.

[Answer] Working sessions of the commission take place twice a year, in the spring and in the fall, in turn in all states. The previous one was in Cuba, the next will be in Budapest. We tried to make the meeting in Krakow a little more ceremonial because of, first, the 40th anniversary of the PRL, second, the 35th anniversary of CEMA and, third, this session being the 25th, which is a jubilee number. I want to take this opportunity to express my thanks to the political and administrative authorities in Krakow for their help in organizing the meeting.

[Question] What does the commission do?

[Answer] Primarily, it is concerned with conceptual and organizational matters related to the existing CEMA common system of communications and its further development. It adopts development concepts, coordinates investment plans, reviews accomplishments, approves new plans and determines technical and operational requirements. It also discusses matters related to the specialization of production of communications equipment within CEMA, matters related to the standardization of equipment and many other problems. The commission does not have at its disposal the means to implement the tasks which it defines. These tasks are implemented by the governments of individual countries and the commission assures their coordination. The commission does not concern itself with problems of industry but generates requirements for it. A different CEMA commission deals with telecommunications industry problems.

[Question] What were the main subjects discussed during the meeting in Krakow?

[Answer] Most of the time was devoted to discussion of a telephone, telex and data network, i.e., telecommunications in general, common for the socialist countries. The benefits of such a network are felt both by individual countries' economies and by individual citizens who can get quick telephone connections with other countries, etc.

[Question] How far has the network construction advanced?

[Answer] This is a somewhat unfortunate question. It cannot be answered: one cannot say 5, 50, or 100 percent because there is no perfect network to use as a model. In telecommunications the "state of saturation" is never reached because the rapid progress in this field makes it impossible to define saturation. The important thing is to have in existence a coordinated common concept for the development of a communications system for a number of years in the future. At this time, our concept extends until 1990. We also discussed postal matters although in Krakow we devoted just a little of our time to them. There is an urgent need to automate postal operations and we also addressed the issue of mechanical postal equipment, such as machines for sorting parcels, distributing letters and automated canceling. Additionally, it is necessary to start producing a modern railroad car for postal use, which is not available in any country.

[Question] What is the Polish contribution to the commission?

[Answer] It is a major one. It has to be so because of our central location in Europe and in relation to the other CEMA member countries. A very large amount of telecommunication traffic goes through Poland, and because of this the concept of a common network is to a great extent the result of our efforts.

[Question] What is the most serious problem to be solved by the commission?

[Answer] Well, generally both in our bloc as a whole and in every country, the number one problem in the field of telecommunications is the very large demand and continuing inability to satisfy it.

Worldwide Maritime Facsimile Publication

Warsaw TRYBUNA LUDU in Polish 22 Jun 84 p 2

[Article by (zw): "You Can 'Print' Newspapers at Sea; GAZETA MORSKA Ready for Publication"]

[Text] Seamen and fishermen who are at sea, occasionally for 6 months or more, lose contact with Poland. Radio programs broadcast to distant locations are unreliable and newspapers sent to Polish ship agents in foreign ports provide outdated information.

Seamen get news from Poland every morning via a newsletter sent in Morse code, entitled GLOS MARYNARZA I RYBAKA and nicknamed "cricket"; they also

set news from telephone calls to their families and from listening to Polish radio programs or to foreign Polish-language programs which, as is well known, present news from Poland in a false and tendentious manner.

The need for providing additional news sources for our merchant and fishing vessels was included in the maritime article of the resolution of the 10th Plenum of the PZPR Central Committee and, subsequently, the matter of improved communications between ships at sea and Poland was listed as an urgent task in the governmental maritime policy statement.

An increasing number of newly built and newly operational ships are equipped with new communications equipment, which includes telex and radio that use satellites. Many merchant and fishing ships have the facsimile capability used to receive graphic meteorological maps.

Facsimile capability consists of receivers converting signals on the principle of telephotography. At the initiative of the Office of Maritime Economy, it has been decided to use this equipment to transmit a new publication, which was named GAZETA MORSKA.

The editing duties were undertaken by journalists of the popular weekly published in Gdansk--WYBRZEZE.

GAZETA MORSKA will be published weekly and it will consist of one page the size of a small poster. It will publish concise materials, subject matter will be condensed and will cover the most important information from Poland and the world. It will also include photographs.

The text will be recorded on a matrix and will be transmitted to the ships at sea from the Warsaw Radiocommunications Center, Warszawa-Radio. Transmission of GAZETA MORSKA will take about 1 hour. The range of transmission will be worldwide. The first issue of the weekly will be, according to publishers' plans, transmitted to the PLO [Polish Ocean Lines] ships, the PZM [Polish Steamship Company] ships, deep sea fishing units and the Transocean PRO [Polish Ship Salvage Enterprise] at the end of July this year.

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CSO: 5500/3017

## DEVELOPMENT OF NEW TELEPHONE SYSTEM DISCUSSED

Budapest FIGYELO in Hungarian No 24, 14 Jun 84 p 4

[Article by Istvan Baka: "'Pocket Telephone'--Nationwide; a Selective Paging System"]

[Text] The majority of people with technical training already know about the selective paging systems widely used in hospitals and department stores; they think of a small device which can be carried in a pocket or worn on a lapel which warns the owner with its "beeping" that someone wants him, that a message is waiting in the telephone center! The message transmission service of the Post Office is well known also; within the framework of this the Post Office will accept (day or night) messages in the Hungarian language from any telephone, addressed by name or code word and consisting of at most 10 words, and it will pass these on to those calling in with the given name or code word.

In the case of both systems obvious restrictions put a limit to mass use. In the case of the former, the restriction is the limited area covered--a building or block of houses; and in the case of the latter, it is the necessity of a previously discussed time and the limit in time.

The elimination of these restrictions was the goal of the Hungarian Post Office when it entrusted the Budapest Technical University with development of a selective paging system.

At present the selective paging system--for the time being we could not think of a better name--is a new service in an experimental stage which is suitable for passing on messages throughout the entire country--anywhere, at any time--unexpectedly, at times not agreed on in advance.

Anyone, Anywhere, Anytime

Let us presume that A wants to send a message to B, who is anywhere in the country, in a place known or unknown. The first condition for receiving the message is that B has a special receiving device which looks most like the pocket calculators now in use. To send the message A will "dial" the following numbers, for example, from a public or subscriber pushbutton telephone supplemented with a special circuit: 123456, to call

the service; an asterisk; 5432, the paging code of the receiving device; and 13525470, the message.

As a result the receiving device, number 5432, in the possession of B will display the numbers 1 352 5470, together with a warning tone (beep).

Let us look in more detail at what happens. The number group 123456 represents the call number of the service (an everyday subscriber number). After dialing it, and a few rings, another humming tone indicates that it is ready to receive the paging code. By pressing the pushbutton marked with an asterisk we put into operation the supplementary circuit built into the telephone. Then we send the 12 digits "dialed" plus a symbol indicating the end of the code, coded in sound frequency (in the form of an audible sound) via the telephone connection to a central device installed by a UHF broadcast transmitter, which acknowledges to A receipt of the call with a broken tone. Then this information is transformed into numbers again (a digital signal) and it is transmitted together with the broadcasts of Kossuth Radio by the UHF transmitter. The receiving device, similar to a receiver for UHF broadcasts, receives the entire signal sent out and with its supplementary circuits selects the 12 digit number.

The first 4 digits (one can select from 10,000) serve to identify the receiving device; this can be expanded if needed. The next eight digits are the message. The receiving device compares the first 4 digits of the number (5432) with its own number and if they coincide it displays the message consisting of eight decimal digits (1 3525470). This message could be an extraordinary number of previously agreed on--thus secret--or general meaning codes (there are 10 to the 8 possibilities). In our case, for example, the 13525470 means that B should call telephone number 352-547, area code 1 (Budapest), as soon as possible (the last digit equals zero). It should be added to the above description that the receiving device of B will give the precise time until it receives a message.

With this addition the system not only provides an additional service it also checks to see that the receiving device is in operation in the system.

In addition to the example given other special use possibilities came to light in the course of development. The eight digit message could be an instruction to automatically switch something on, for example, to switch on or off devices using electric current--hot water heaters, electric ovens, traffic and other signal lights, etc. Thus devices at any point in the country could be switched on selectively from great distances.

The receiving device could be switched from a warning tone to a vibrating signal--to ensure that it could be used in a theater or other places. In this case the fact of a call is indicated by a vibrating movement in the pocket. It is another service of the receiving device that it is tuned automatically to the UHF transmitter transmitting the paging service which can be received best--so that it can be used in various parts of the

country. So, when travelling in a car, it is not necessary to retune the receiver to different stations.

#### Replacing and Freeing

Although in the present phase of the developmental work--keeping in mind the uncertain schedule of the research and difficulties in acquiring the parts needed for the experimental devices--we have not made a broad survey among future users, we have conducted an orientation study. Thus we can only guess at a few use possibilities or the economic utility connected with this.

This estimate is based on the popularity of similar systems in operation abroad. In general the systems widely used in Europe operate with a separate radio network and the receiving device indicates a message only with a pre-sound signal; the person called receives the message after calling a pre-determined phone number. In contrast to this the domestic system operates with a secondary use of the broadcast transmitters already operating. Thus the transmitter network does not require separate investment.

In countries with a developed telephone network the chief motive for development is primarily of a supplemental character. In our case a need for mass use can be expected due to the function of replacing and freeing the telephone.

Even in the research phase it turned out that the ideas appearing in the first phase of initiating the service far exceeded our earlier thinking. The use examples discovered thus far represent only a small fraction of those which will appear in the course of later practice:

--In the area of enterprise vehicle management information changing the route can be sent to vehicles on the road--correcting work organization deficiencies or making use of new information. This could reduce empty runs and fuel use.

--Plants far from one another or from the warehouse can exchange information quickly concerning inventory. (At a lower level than with a computer network, but with much less cost; thus inventory management could be improved also.)

--By using circular calls it would be simple to quickly convene and notify certain work groups (for example, blood donors, organ transplant teams, armed forces teams, etc.).

--Personnel in leading positions could be notified or called quickly, to make decisions which cannot be postponed or for other purposes.

--Immediate message transmission for those with mobile occupations (journalists), actors, artisans, physicians, etc.).

--Various private messages for the populace (due to saturation or deficiencies of the telephone net).

--The system is also suitable for incidental services. For example, it could relieve the burden on or supplement the postal wake-up service, extend the exact time service, operate public clocks, sound alarms, organize traffic or be added to private automobiles as alarm equipment.

Nationwide by 1986

We will complete and evaluate the system tests now underway by the end of the year. Parallel with this, preparations have begun to develop a series model for the receiving device. The result of this can be expected by the end of 1985. Series manufacture will begin then also. Considering that this is also the planned time limit for national construction of the central units the service could be started nationwide by 1986.

(Interested users and those applying for manufacture can see the experimental system at a demonstration to be given in the center of the Hungarian Post Office on 21 June at 1000 hours.)

8984  
CSO: 5500/3015

FORMULATION OF INFORMATICS POLICY DISCUSSED

Sao Paulo VISAQ in Portuguese 4 Jan 84 pp 62-64

[Text] In formulating a data processing policy, the following issues are under debate: market restrictions; the tendency of nationalization (via banks); unfair competition as a result of exchange and import controls; outside pressure; and the dispute among the ministries.

Along with discussions on the direction the presidency is to take, Congress will have to make an important decision during the second half of the year regarding the future of data processing in Brazil. There are two conflicting proposals: one by Senator Roberto Campos to eliminate market restrictions; and, the other by Deputy Cristina Travares, supporting and reinforcing the restrictions. Between the two is the Government's proposal to institute the Brazilian Data Processing System (SBI) and guarantee market protection, provided Brazilian firms agree to participate in the capital of foreign companies in the form of joint ventures.

This proposal, which is now in its eighth version, is to be submitted to Congress during the second half of May. Divisions within the government, specifically involving the matter of market protection, have been delaying a decision. Recently, another debate has divided the government: the growing power of the Special Informatics Secretariat (SEI), an agency of the National Security Council (CSN).

Many people in the government, beginning with Minister of Industry and Trade Camilo Penna, have been objecting to the SEI's super-powers and its interference in operational aspects of data processing policy, since normally this agency should be involved only in formulating such policy. Besides interfering in applications for imports of parts and components and in defining technologies and even production plans of firms in the sector, the SEI decided to spread its tentacles to producing digital equipment in the area of measuring instruments, analytical instruments and even biomedical equipment.

It was this new offensive which aroused justified fears in the government that the agency was becoming some sort of data processing dictator in Brazil, which would impede rather than accelerate the sector's growth. This led the Executive to begin to think in terms of establishing a joint agency in which the

general secretaries of all the ministries would participate. It would be known as the National Informatics Council, with the SEI acting as Executive Secretariat of the Council. We know that the reaction of the SEI and of some members of the CSN to this idea is that it has increased the delay in submitting the Executive's proposal to Congress. In any case, President Joao Figueiredo's inclination is to pass on the responsibility for any new legislation on data processing in Brazil to his successor.

#### No Xenophobia

And, as long as the government's proposal is not forthcoming, Senator Roberto Campos, president of the Senate's Economic Committee, is promoting discussions on data processing policy, in which Ministers Camilo Penna, Danilo Venturini and Haroldo de Mattos have already taken part. His idea is "to get Congress to discuss the subject without any xenophobic concerns, on the basis of economic factors rather than political ideology." He admits to being extremely concerned over the tendency towards nationalizing the data processing industry and feels it needs to be "denationalized," as he puts it, and he points out that one of the subjects under discussion is the growing power of the SEI.

For instance, Campos questions the legal and constitutional basis for SEI's current activities involving import controls, industrial policy and the corporate structure of firms. In his view, there are other options for co-ordinating data processing policy. "Since it is an extremely dynamic sector," he asks, "shouldn't it be left to the market forces, because any government intervention generates more bureaucracy?"

If some government intervention is desirable, Roberto Campos offers other alternatives besides the SEI, such as the Ministry of Communications, since data processing is related to telecommunications, the Ministry of Industry and Trade, responsible for guiding industrial policy, or SEPLAN [Planning Secretariat], which is in charge of coordinating economic policy.

Arguing against market restrictions, Campos wants to know how they could be reconciled with Brazil's commitments as a member of GATT, or with borrowing contracts with the World Bank and the IDB and "commitments to rationalize economic policy" signed with the IMF. He maintains that instead of market restrictions, the government could enact other alternative policies, such as customs protection for locally produced goods and customs protection plus special incentives for industries with a majority of Brazilian capital.

In his statement before the Senate's Economic Committee, Minister Camilo Penna defended not only the creation of a central agency over the SEI to direct data processing policy with the participation of representatives of producers and users, but also market restrictions mitigated by the participation of foreign capital, because "the Brazilian businessman is ready for partnerships of this sort and deserves confidence."

But discussions on market restrictions in the government and in Congress focus on the question of private domestic companies versus foreign companies, and

fail to take up other important issues. One of these issues is government exchange controls, which prevent domestic firms from being more flexible, and force them to vie for the market with their foreign competitors without the benefit of a strong currency, in addition to difficulties in gaining access to modern technology.

Another issue that has been left out of discussions involving protection for national data processing firms is the growing activities of financial conglomerates in the field, which are either setting up their own companies or absorbing or buying into the capital of already existing firms, which then change owners.

#### The Advance of Banks

This advance is dangerous for the original data processing companies in the sector, in that they can become dependent on the supply of parts and lose their market share to competitors which are financially well-off and which have a captive market formed by the conglomerate itself.

Since companies go to banks to raise funds, they could be harmed first by intentional credit restrictions and then by a leakage of information important for gaining a competitive edge. Apparently the SEI does not see any disadvantages to the emergence of large conglomerates on the market, as they could even open the equipment export market to the control of banks, which is already being done.

Thus, as financial conglomerates increasingly snatch up parts of the industrial, commercial and service sectors, following the pattern of the German company Konzern or the Japanese Zaibatsu, they control the economy. And, since they are operating with carte blanche from the government, everything could be nationalized before one knows it.

#### Banks: Undesirable Control

In discussions on the direction the country's data processing industry should take, control by financial conglomerates has not been duly questioned. The financial sector can be found in nearly all companies and in the most important projects, and primarily in the most recent ones involving micro-electronics.

This invasion, which has been criticized a number of times by VISAQ, is occurring at the same time as financial power is spreading over a number of industrial sectors and services, with the support provided by the Law on Corporations since it was promulgated in 1975.

An example of this expansionism is the corporate structure of COBRA [Brazilian Computers and Systems]. The following firms hold shares in its capital: Electronica Digital (in turn controlled by Banespa, Itau, Bradesco, Unibanco, Bamerindus, Economico, Noroeste, BCN, Caixa Economica do Estado de Sao Paulo and the Sao Paulo and Rio Stock Exchanges), with a 37.4 percent share; BNDES with a 20.5 percent share; Caixa Economica Federal, with a 20.5 percent share; and, in Bank of Brazil, with 13.4 percent.

Banks participate in the capital of eleven large companies which are involved in producing data processing equipment.

However, what is even worse is the increasing share of government capital in this sector. Government banks today have shares in COBRA (58 percent), Coencisa (32.6 percent), Xtal (70 percent) and Induco (15.4 percent), as can be seen from the chart.

#### Participation of Banks and Firms in the Data Processing Sector

<u>Firms</u>	<u>Shareholders</u>
COBRA	Electronica Digital Brazil (various financial institutions)--37.4 percent; BNDES--20.5 percent; Caixa Economica Federal--20.5 percent; Bank of Brazil--13.4 percent
Unibanco Systems	Unibanco (commercial bank)--86 percent; Unibanco (investment Bank)--14 percent.
Labo Eletronica	Brasilpar Com. e Part.--26 percent
SID	Bradesco--20 percent
Edisa Eletronica	Lochpe group--over 50 percent
Grafica Bradesco	Bradesco--99.9 percent
Banestado	Parana State Bank--100 percent
Cirypress	Unipar S.A.--37.5 percent
Digilab Laboratorio Digital	Bradesco--50 percent
Coencisa Ind. e Com. S.A.	Regional Bank of Brasilia--32.6 percent
Itau Tecnologia	Investimentos Itau S.A.--51 percent; Banco Itau S.A.--49 percent
Comsip Engenharia	Brasilpar Com. e Ind.--19.7 percent
Xtal do Brasil	BNDES--70 percent
Induco S.A. Ind. e Com.	Banerj--4.9 percent; BD-Rio--11.42 percent

Source: DADOS E IDEIAS, August 1983.

9805  
CSO: 5500/2051

SEI SECRETARY FORESEES MERGERS IN INFORMATICS SECTOR

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 29 Jun 84 p 24

[Text] Special Informatics Secretary Edison Dytz reported yesterday in Rio that SEI [Special Informatics Secretariat] foresees a series of mergers in the sector, with the participation of various banks and financial institutions, as a way of having the market absorb a number of firms which, in his opinion, "are in difficulty." According to him, the Secretariat decided on this course of action following competition from computer manufacturers making computers larger than the "minis" and smaller than the medium-sized ones, i.e., the so-called "superminis," an area in which some of these firms proved to be weak.

Dytz pointed out that there is a trend toward increasing participation by banking institutions in the sector, not as financing agents but as partners, unlike what is happening in most sectors of the Brazilian economy. He further disclosed that besides the large-scale participation of groups such as Itau and Bradesco, others are getting ready to enter the data processing sector, following the example of the Northeast Bank.

The SEI secretary also said that his agency is meeting with multinationals located in Brazil with a view to ensuring that they "meet their commitments with Brazil." In this connection, he reported that negotiations had been taking place with IBM, and that there would be further meetings with IBM in a few days, as well as with Burroughs. According to Dytz, "what we want is for the multinationals to increase their participation in the country's technological development in areas such as microelectronics, CAD/CAM (computer-assisted projects), software and robotics, among others."

"These companies want to increase their line of products in Brazil, but they must fulfill their commitments," he stressed. In a talk delivered at the Commercial Association, the SEI secretary recounted how market restrictions for the domestic industries in the sector were started, and showed how this policy had allowed 123 national firms to develop, in addition to permitting the growth of the multinationals, which number 13 today. Referring to Senator Roberto Campos' criticism of the SEI, he had the following to say: "I don't understand how control can be established with 123 companies." Earlier Dytz had objected to the Senator's statement that the members of the SEI were "militarists," indicating that Campos "was stooping to a new low, and that he

was repeating himself. The SEI has 150 employees and only three are of military origin, all in the reserves. We are just as civilian as he is."

The SEI secretary also reported that the government's bill, which provides for market protection for the data processing sector and establishes incentives for the sector, has gone back to the National Security Council, after having been examined by the economic authorities, and should be forwarded shortly to the President of the Republic, who will then send it on to the National Congress.

9805  
CSO: 5500/2051

BRAZIL

BRIEFS

SATELLITE TV MONITORING APPROVED--The Communications Ministry has authorized the installation of private antennas to monitor satellite television signals for domestic use. The owners of these antennas must report the complete address of the locations where these antennas are installed and the type of equipment used in DENTEL [National Telecommunications Department]. [Summary] [Sao Paulo Radio Bandeirantes Network in Portuguese 100 GMT 3 Jul 84 PY]

NEW TELEPHONE EXCHANGES--Communications Minister Haroldo Correa de Mattos has inaugurated in Sao Paulo State six automatic telephone exchanges of the Sao Paulo Telephone Company [TELESP] that will benefit more than 38,000 users. According to the minister these exchanges will be identified with the acronym CPA that represents a new technology that offers an easier operating system as well as a more modern design of equipment. [Summary] [Brasilia Domestic Service in Portuguese 2200 GMT 12 Jun 84 PY]

SATELLITE LAUNCH PLANS--Communications Minister Haroldo de Mattos today said that the program to launch Brazilian-made satellites is in its final stages. The communications minister reported that the operations center, which is located in Guaratiba, Rio de Janeiro, is already carrying out the proper tests and that the first satellite is scheduled to be launched by February 1985. [Excerpt] [PY120152 Brasilia Domestic Service in Portuguese 2200 GMT 11 Jul 84]

CSO: 5500/2053

MEXICO

ASPECTS OF NOTIMEX OPERATION DISCUSSED

FL122216 Mexico City NOTIMEX in Spanish 2000 GMT 11 Jul 84

[Text] Mexico City, 11 Jul (NOTIMEX)--President Miguel de la Madrid this afternoon visited the new facilities of the Mexican News Agency (NOTIMEX) to familiarize himself with its programs of operation and development. Accompanied by Interior Secretary Manuel Bartlett, De la Madrid presided over a working meeting of the agency's management and representatives of each of its sectors.

After 16 years in existence, NOTIMEX is strengthening its essential work in communications of informing the media and interested individuals who participate in Mexico's development process. In keeping with its status as an official government organization, NOTIMEX is at the disposal of the government for publicizing the nation's activities. It also provides information on international events from an objective and accurate viewpoint, always emphasizing Mexican interests.

The Mexican News Agency, now located at 110 Morena Street, Colonia del Valle, coordinates information among various government communication organizations, seeking a homogeneous and congruent point of view. The agency, therefore, represents an option for public opinion by which the reader can exercise his own judgment and analysis of the facts.

The Mexican News Agency utilizes the largest network of correspondents in the country. Currently, the network comprises 15 offices, approximately 40 correspondents, and 20 collaborators, with which it covers the main cities and capitals of the country. NOTIMEX information is transmitted to more than 200 subscribers throughout the country and abroad. It is predicted that by the end of 1984, the agency will be supplying most of the newspapers in Mexico with a circulation of 5,000 or more. The NOTIMEX wire now reaches most of the national radio and television networks.

Since 1983 the agency has been supplying a news service to affiliated radio stations in Mexico City and several other cities with populations greater than 50,000, with three daily transmissions at 0800, 1400, and 2000, which are retransmitted on 60 stations. Moreover, a telex service has been installed at Radio Mexico, which broadcasts three overseas news programs containing NOTIMEX material.

Internationally, NOTIMEX has regional offices in Washington, New York, and San Jose, Costa Rica, the last one covering Central America. The agency plans to open similar offices in Los Angeles, Caracas, Buenos Aires, and Madrid.

In all, the Mexican News Agency supplies its subscribers with an average of 150 items daily from 0500 to 0100. In this way, NOTIMEX, conscious of its role in the national journalistic media, seeks to satisfy the country's information needs and each day records the events that make history.

CSO: 5500/2055

PERU

BRIEFS

NEW SATELLITE GROUND STATION COMPLETED--Huancayo, 29 Jun--Peru now has completed constructing and equipping a new satellite ground station. It is presently in the stage of acceptance agreements and final operational testing. The Sicaya ground station is located 15 km north of Juaycayo and represents an investment of 33 billion soles. The station will constitute the first international communications center in Peru, according to a technician who is a consultant for assembly operations and who stated that it employs advanced technology and has a greater capacity than the similar station at Lurin. Through this center, immediate national and international communications by telephone, telex, television, computers, and unifax (long-distance photographs) will be transmitted and received by a giant antenna. It assures that in the future our country will be able to transmit simultaneously two international television programs by using the Sicaya and Lurin stations at the same time. It is important to mention that, thanks to this new station, international service, which currently does not suffice for handling calls as promptly as modern life requires, will be less congested. Nippon Electric Company technicians have been in charge of installation, which has taken somewhat more than 3 years. Erection of the Sicaya ground station is one of the most complex projects carried out in recent years in the central mountains of Peru; therefore, its protection demands the greatest possible efforts. A strong police detail is maintaining strict watch in that area in order to prevent unauthorized persons from approaching the installations. [Text] [By Raul Mayo] [Lima EL COMERCIO in Spanish 30 Jun 84 p A-16]

CSO: 5500/2054

REGIONAL COMMUNICATIONS PROJECT APPROVED

Amman JORDAN TIMES in English 27 Jun 84 p 3

[Text]

**AMMAN (J.T.)** — Work on the 11.2 million regional axial cable project linking Amman with Damascus and Haqel in Saudi Arabia

will commence in 1987, Al Ra'i Arabic daily newspaper quoted Minister of Communications Mohammad Addoub Al Zaben as saying Monday.

Speaking about the project, Dr. Zaben said it is one of the most important of such regional projects, and constitutes a major part of the comprehensive communications plan for the Mediterranean area.

Because the project is viewed as a vital artery for earth communications, the Arab Fund for Economic and Social Development has agreed to finance part of it having received a feasibility study commissioned in 1978 from an international consulting company, Dr. Zaben said.

Speaking about the services the project will provide for the three countries, Dr. Zaben said it would include telephone, telex and telegraphic services, in addition to

transmitting national and regional television programmes.

The project, Dr. Zaben said, consists of two parts. The first is the axial cable, which starts from Damascus and passes through Amman to the south of Jordan, while the second, the microwave net, will start from Amman and end in Haqel in the southern part of Saudi Arabia.

Tenders for both the axial and microwave projects were floated on April 21, 1984.

The project will be implemented in three stages to comprise the preparation of designs and specifications; the examining of tenders, and the execution of the project, which will take 24 months for the axial cable and 18 months for the microwave, Dr. Zaben added.

The microwave part of the work will cost JD 5.5 million, the minister concluded.

CSO: 5500/4515

BANGLADESH

BRIEFS

CHITTAGONG INTERNATIONAL DIALING--Chittagong, June 2--DCMLA and Minister for Communications, Rear Admiral M.A. Khan on Thursday visited telephone exchange at Nandankanan here and was satisfied to see that 2000 lines expansion at the exchange has been completed in time and put on test, reports BSS. This will enable Chittagong to have international subscribers' dialling with 1000 line capacity through installation of Automatic Number Identified (ANI) equipment and another one thousand for ordinary subscribers. The ISD facility will be available in few weeks time. The Minister also went round the telegraph office and ordered that all nonoperative equipment should be immediately replaced for ensuring 100 percent smooth and rapid functioning of the telegraph office. [Text] [Dhaka THE BANGLADESH TIMES in English 3 Jun 84 p 2]

CSO: 5550/0021

SPACE PROGRAM, FUTURE PLANS REVIEWED

Paris SCIENCES & AVENIR in French Jun 84 pp 68-73

[Article by Albert Ducrocq: "India Takes Off..."]

[Text] The voyage of an Indian cosmonaut on board Salyut is but one of the aspects of the Indian space effort. For a long time now, this country has had satellites launched by the Americans, the Soviets and the Europeans, and has also placed some in orbit itself. Today, India is planning the building of a hydrogen rocket.

While one cannot say that India is one of the pioneer nations in space ventures, it must at least be admitted that Gandhi's fatherland was one of the first to become involved in satellites. Geographic and economic factors in particular explain this interest. First of all there is the climate, simultaneously complex and whimsical: there are six seasons which give rise to the interplay of monsoons, the devastating Bengal floods and tropical cyclones. Then the nature of the terrain hinders transportation and communications and does not lend itself to the establishment of a radio relay network. The entire northern part of the country is covered by the Himalayas, and two coastal chains, the Eastern and Western Ghats, cut the Deccan plateau in the center of India off from the ocean.

Moreover, 70 percent of the people are illiterate, and the birth rate is one of the highest in the world. India today has some 750 million souls: three times the population of Europe. This situation explains why the Indians have placed their reliance on satellites. They expect them to provide maps--precise maps of vegetation, soil studies which will make their aptitudes known, and a survey of the subsoil resources. They also expect satellites to provide an effective means of combating illiteracy. Rather than waiting for the training in the near future of the teachers needed for the education of the masses who cannot read or write, they have become aware that a satellite in geostationary orbit can communicate with as large an audience as one could want. The fact remains that making oneself heard to several hundred million individuals is useless if one does not know how to talk to them. The Indians have clearly understood this, and have sought to define an educational television program, carrying out a certain number of pilot projects.

For example, educational television sessions have been organized in the socio-educational centers in the cities or in village squares in the rural sector since 1965, with the assistance of the French and using conventional land resources. This was a success, and in 1967, New Delhi decided to take the leap and to approve a satellite program for Indian use. Some would collect information with a view to developing the territory, while others would gather meteorological data to warn the people of imminent floods and cyclones. Further still, it was a question of putting educational satellites into geostationary orbit. Who would build them, and who would launch them? India was at the time capable neither of the one nor the other. How could the choice between the Americans and the Soviets be made? Very simply, by turning to Europe, and that was what the Indians did.

At that time, the old continent was attempting to develop a launcher project for the Eldo program. Initially, this launcher was described as capable of putting 1,200 kilograms in low orbit. This won the approval of the authorities in New Delhi for a satellite program using Indian land resources. But the Eldo program was just developing. The Europeans soon began to favor the Europa rocket which could put communications satellites in geostationary orbit, and this too was of great interest to the Indians. In its Europa 2 model, the European launcher had only noncryogenic components, but a much higher performance rocket, the Europa 3, was already under study. Discussions between the Europeans and the Indians began. But, as we know, Eldo was a regrettable failure. The Indians were tremendously disappointed, but the contact was maintained. New Delhi was grateful that the French and the Germans made a Symphonie satellite available to it for educational experiments.

Cooperation was renewed when the Ariane era began. The Indians benefited from the offer made them by the Europeans to put a communications satellite (Apple) into orbit, at no cost, within the framework of the experimental launches of the European rocket. The Indian Space Research Organization (ISRO) then joined in the Argos experiment carried out using Tiros-N. About 100 permanent stations collected hydrological information pertaining to rainfall and the low level marks for water courses, lakes and dams, for retransmission by satellite, while 10 or so buoys (whose location would be established from space) collected oceanographic data. Meanwhile, after the Eldo failure, the Indians had no alternative but to commit themselves elsewhere. They turned both to the Americans and the Soviets, pursuing a "division of labor."

With the Soviets, they cooperated in all aspects of establishing land resources, both by automatic means and with a pilot flight. The Soviet-Indian mission in April of 1984 was broadly based on this approach. Where geostationary orbits were concerned, the option was quite naturally for collaboration with the United States. The Americans did not need to be asked twice to take over from Europe when it came to educational television from space for the Indians. In a first phase of this program, a satellite was used after its normal service time. Equipped with a huge parabolic antenna 9 meters in diameter and with 26 square meters of solar panels, the enormous ATS-6 technological satellite (930 kilograms) which the Americans began to build in 1969, with a view to launching in 1974, seemed ideal for such an experiment. Following an agreement signed in 1969 between NASA and Dr

Serabhai, president of the ISRO, it was arranged that after a year of use by the United States, this ATS-6 satellite would be placed over Kenya for a Satellite International Television Experiment (SITE) operation.

This operation began in the second half of 1975. Thorough preparations had been made. Programs broadcast from Ahmedabad by All-India Radio were received by the ATS-6, which rebroadcast them over the whole of Indian territory by means of its antenna aimed at the heart of the country with accuracy within a tenth of a degree, and an aperture angle of  $2^\circ$ , guaranteeing a gain of 33 decibels. Since the power of the ATS-6 transmitter was 17 W, its apparent radiated power--the factor the experts call the PIRE--thus came to 50 dBW.

While the majority of the direct television programs rely on PIRE of about 60 dBW, this power suffices for an experiment the purpose of which is not so much education as such as the gathering of data on the basis of which an ideal communications satellite can be conceived. There are 2,400 stations established on the ground equipped with umbrella aerials. Experience shows that good reception is possible in some cases with an antenna of only 1.2 meters. Programs are transmitted on the 850 megahertz frequency, thus allowing reception of them with relatively conventional technology. These 2,400 stations are distributed, at 400 stations per region, among six sites chosen by the Indians in an equal number of very different regions: Madras, Bombay, Delhi, Calcutta, Bikaner and Srinagar. Reception is good in the first four sites, mediocre in the fifth and rather poor in the last-mentioned, more than  $2^\circ$  from the satellite axis. Overall, the results are not disappointing, and they gave a green light for the great leap forward: placing Indian-produced satellites in geostationary orbit.

This program was called Insat 1, which the Indians developed within the framework of broad cooperation with the United States. The U.S. supplied India with a fixed satellite with three axes built by Ford, and carrying on board 12 conveyors and 2 direct television channels. Each Insat satellite made 8,000 telephone lines available to the Indians who, in addition, could receive messages from the satellite--educational programs or warnings of weather disasters--thanks to community receivers located in the rural sector.

Insat 1 was scheduled to go into space on 8 April 1982, but defective solar cells forced a delay of 3 days in this operation. Launched from Cape Canaveral on 11 April by a Delta 3910 rocket carrying a PAM D-1, the satellite experienced initial difficulties. The apogee motor would not respond to the orders dispatched from the Indian space center in Hassan. Finally the problem was resolved and the satellite settled into geostationary orbit at  $74^\circ$  E. However, it only operated for a few weeks. The functioning of Insat 1-B, which was launched from Challenger on 31 August 1983 during the eighth shuttle mission, however, proved excellent. The launching of Insat 1-C is expected in 1985. Then the Insat 2 program is scheduled to begin, with the prospect of carrying out a vast educational television experiment involving 500,000 villages.

Parallel to this collaboration with the United States in the knowledge and educational fields, the Indians are pursuing cooperation with the USSR in remote sensing. It began with a technological and scientific satellite. In

August of 1973, a team of Indian scientists headed by Professor O. R. Rao began a training course at the Institute of Cosmic Research in Moscow. Under the direction of V. M. Kovtunenko, various Soviet experts introduced the Indians to space techniques. Then a working session took place in Bengalore, where the ISRO research center is located, using a satellite model on which 200 researchers worked. The Indians then returned to the Soviet Union, more specifically to Kapustin Yar, to obtain all of the data needed for mechanical tests. A flight model was prepared.

Aryabhata, the first Indian satellite, was so named in honor of the scientist who is regarded as the father of Indian astronomy, and who in a book written in 499 A.D., established the foundations of spherical astronomy and described the rotation of the earth. The Soviet builders served as advisers in the construction of the satellite. In addition, they furnished certain of the elements--chemical and solar batteries, stabilization system, memory and thermal protection.

The launching of this 360 kilogram satellite by a small Intercosmos rocket took place at the cosmodrome in Kapustin Yar on 19 April 1975. The Indian delegation attended in force: no fewer than 50 experts, headed by S. Dkhavan, the director of the ISRO, were present there. This deluge of people upset the Soviets somewhat, but they nonetheless proceeded to deal with the situation courteously.

The propelled flight proceeded normally, and 20 seconds after Aryabhata was placed in orbit--568/611 kilometers, inclined at 50.7°--the tape recorder and the scientific apparatus were activated. The confirmation of placement in orbit was provided by a USSR Academy of Sciences vessel navigating in the southern hemisphere.

For 10 successive days, the satellite was controlled by the Soviets from their Bear Lake center in the Moscow region. Then the Indian center in Chrikarikhhat took over. The task of the satellite was basically to study the ionospheric plasma, to record gamma radiation as well as solar neutrons, with equipment designed to be 10 times as sensitive as any previously carried aloft (for the purpose, on the one hand, of establishing the nature of the nuclear reactions occurring on the surface of the sun, while on the other hand, carrying out research on astronomy X (in the Scorpio constellation in particular).

The Indians then entrusted their IRS-1 and Bhaskara 1 and 2 satellites to the Russians. On 7 June 1979 and 20 November 1981, they were placed in orbit, again from Kapustin Yar --519/541 kilometers inclined at 50.67° and 520/542 kilometers inclined at 50.64°, respectively.

Bhaskara (444 kilograms) is a veritable spaceship with a guidance system including horizon finders and solar sensors, and a nutation-reduction stabilizing apparatus. With a height of 1.19 meters and a span of 1.59 meters, it is a polyhedron with 26 facets. Solar batteries, which supply a cadmium-nickel battery serving as a buffer, ensure it of 47 W power for the execution of experiments of various sorts pertaining to astronomy X, the examination of

platforms, the study of oceans with a radiometer operating on two frequencies (19 and 22 GHz), and above all, observing the earth by means of two cameras functioning within the visible and near-infrared ranges (0.6 and 0.8 micrometers). The data can be retransmitted with an output of 91,400 bauds, which is very little in terms of the tens of megabauds required by the modern land resource satellites, which have decametric resolving power, while that of the IRS-1 is about 1 kilometer. Nonetheless, a step forward is scheduled to be taken with the huge Indian IRS-2 satellite, which plans call for launching from Baikonour in 1986.

Moreover, within the framework of Soviet-Indian piloted flight, an important role is assigned to observation of the earth, using all of the resources which will be available as soon as it is possible to recover a film: the resolving power will be metric!

Aboard Salyut-7 launched on 4 April 1984 (see the space month, page 18), Indian cosmonaut Rakesh Sharma has in fact collected a number of pictures of the Indian Ocean and India, in particular regions to which access is difficult in the Himalayas, first of all, where the northern part of the country is concerned, for cartographic purposes, but also in order to pinpoint on the negatives the regions which may contain not only hydrocarbons, but other sub-soil resources as well. Parallel to this space flight, the Indians are photographing these zones with a laboratory plane in order to determine what sites would be favorable for the building of hydroelectric plants. Having observed a technique for interpreting land negatives while working with the Soviets in connection with IRS-1, the Indians will utilize it while working with the Americans, within the framework of Landsat 4 and 5 operations. In fact, India hopes to obtain direct reception in Hyderabad, the station chosen to serve as a part of the Landsat world network, of films taken by these two satellites and transmitted by the TDRS [Tracking and Data Relay System]. The Americans were hesitant for a long time about including an Indian station in their network. This reticence was explained by the collaboration with the Soviets in the realm of land resources. When they did decide in favor of India, it was because of Iran, where, prior to the advent of the Islamic regime and the tension between the two countries, plans had called for the installation of a Landsat station. Since too large a part of the earth--the area between Fuerno and Bangkok--would have remained without ground coverage without this Indian station, the Americans therefore made the best of a bad bargain.

What remains a priority matter for the Indians, despite the interest of these programs, is naturally the development of a rocket program which would allow them, before the year 2000, to launch all their satellites using their own resources.

With this in view, the Indians very naturally set as their goal the construction of a rocket probe. In order to proceed as rapidly as possible, they decided in an initial stage to purchase the license for an existing model. Their choice was the French Centaur rocket (which, it goes without saying, has nothing to do, despite the similarity of the names, with the American rocket, which is still being used today to build the higher stage of the Atlas, serving the function of placing the loads in geostationary orbit).

The Centaur is a rocket probe with solid fuel, as light as it is uncomplicated, the stages of which separate quite simply thanks to a belt containing an annular hollow charge set off by an electric detonator. The Indian version has been named the Rohini 560 (rohini means "star").

This is the first Indian meteorological rocket, launched from the Trivandrum center, in the province of Kerala, in the southwestern part of India. The center, which was established in 1968, will be the scene of intensive international activity, involving the launching of a number of Soviet rockets, in particular.

Also, the Indians have undertaken to build a range of space rockets which they have designated Space Launch Vehicles (SLV). After studying two projects, they have cast their lot with a model directly inspired by the American Scout. The SLV-3 will be the first Indian space launcher. Its dimensions are the same as those of the Scout: 22.7 meters high, with a diameter of 1 meter, and like the Scout the SLV-3 has a mass of about 18 tons. Again like the Scout, it has four solid fuel stages (which on the American launcher are called Algol 3, Castor, Antares 2 and Altair, respectively).

The first three stages are equipped with a gyroscopic guidance system, and the fourth is stabilized by spin.

India is capable of producing excellent solid fuels ([butalanes]), the performance of which is the same as that of American fuels. However, structurally speaking, it cannot hope to rival American technology. In particular, Indian industry lacks the capacity to manufacture extra-light tanks. Therefore, while the Scout puts something like 170 kilograms in low orbit, representing a mass ratio near 100, the Indians must set less ambitious goals for their SLV-3. Their rocket will place less than 50 kilograms in a 300/900 kilometer orbit.

Development is taking much longer than planned. The Indians had nurtured the hope of being able to use the SLV-3 as early as 1974. It was not until 1979 that one of these launchers was ready. It was fired up on 10 April at the space launching ground established on the island of Sriharikota not far from Madras. The experiment ended in failure. When a defect developed in the second stage a little more than 5 minutes after lift-off, the upper portion of the launcher fell into the sea some 500 kilometers from the point of departure.

A satellite was put into orbit on 18 July 1980. Rohini-1, a 35 kilogram technological satellite powered by solar cells was put into orbit--305/919 kilometers at an incline of 44.7°. Although its performance has been modest, India has become the seventh space power, and observers stress the possibility that the SLV-3 can be converted into a medium-range ballistic missile. This Rohini-1 satellite remained in orbit until 25 May 1981.

Rohini-2, launched on 31 May 1981, was a semi-success. Poor execution of the program for seating the SLV-3 rocket put this 38 kilogram satellite in a 187/418 kilometer orbit at an incline of 46.3°, the low perigee of which limited the life of Rohini-2 to 8 days.

On 17 April 1983, on the other hand, Rohini-3, slightly heavier than its predecessors, was placed in an orbit guaranteeing it a long period of service. Technologically, progress was made. This was a land resource satellite. The Rohini-3 carried a camera which sent pictures to the Indian space project center in Ahmedabad.

And this is where we are today. The next stage should consist of adding two power boosters to the SLV-3, each weighing slightly more than 10 tons, thus creating an ASLV, which is scheduled to be put in service next year. With this ASLV-3, the Indians hope to place a 150 kilogram technological satellite in low orbit, again with an inclination very close to 45°, in each of 3 years--1985, 1986 and 1987.

The Indians will then use liquid fuels--the nitrogen compounds which can be stored and which are used on the Ariane (UDMH [unsymmetrical hydrazine] and nitrogen tetroxide) to fuel first the second stage of a PSLV launcher (which will continue, moreover, to use solid fuels). The second stage motor will however be the Viking of the European rocket built under license and renamed the Vikas. This PSLV will achieve a mass of 137 tons on lift-off, and it is expected that the mass ratio will drop to slightly below 100, which should make it possible to place about 1,400 kilograms in orbit at an inclination of 45°. But with this PSLV, the Indians hope also to begin launching satellites into polar orbit, for both civilian and military uses, and the mass of these satellites will in any case exceed 1 ton.

Naturally, a PSLV equipped with heavy boosters will be developed next. This will be the SPSLV, which, according to present plans, should be operational in 1989. With 300 tons at lift-off, the SPSLV should be able to put some 3 tons in polar orbit and about 660 kilograms, representing the mass of a communications satellite of the Insat-1 type, in geostationary orbit.

At that stage, the circle should be complete. If matters develop as expected, the Indians will have achieved their main goal: placing their educational satellites in geostationary orbit thanks to purely domestic resources. This will not, however, represent the end of their effort. While space projects throughout the world are in the hydrogen phase, the Indians plan (and it is their ambition to achieve this goal by 1991) to equip the SPSLV with a higher cryogenic stage. It will have a motor derived directly from the French HM-4, designed to carry a mass of more than 1 ton into geostationary orbit. This in fact will doubtless be the mass of the second generation educational satellites which will follow the Insat-1 in the course of the last decade of this century. But that is another story...

5157  
CSO: 5500/4733

## BRIEFS

NEW ELECTRONIC EXCHANGE--Bombay, May 16--Bombay Telephones will get its second electronic exchange when the 10,000-line '851' Mazagon-III exchange is commissioned late next week. A third such exchange, with the code '493' would be commissioned at Worli by mid-June, Mr P.C. Jauhari, general manager of Bombay Telephones, told this paper today. The commissioning of the Mazagon-III exchange will enable BT to provide new telephones in Mandvi and Mazagon, in the Mazagon exchange area, the OYT and Special category waiting lists will be cleared up to April 30 this year, and the general category up to March 31 this year. In the Mandvi exchange area also, OYT and special category lists will be cleared up to April 30 this year, and the general category up to May 11, 1981. New telephones will, however, be provided only between December 1984 and March next year as cable work will begin after the monsoon. The new telephone directory would be available after the monsoon, Mr Jauhari said. The system now has 4,63,000 lines with 5,60,000 telephones, 47,000 telephones--equal to the capacity of the Pune telephone network--having been added in 1983-84. [Text] [Bombay THE TIMES OF INDIA in English 17 May 84 p 8]

EARTH STATION PLANS--Nineteen more earth stations for satellites are planned to be set up in the country by 1986 to provide better communications facilities, reports UNI. According to official sources, these stations will be put in Doda, Rajouri, Poonch and Kargil in Jammu and Kashmir, Bastar in Madhya Pradesh, Keylong, Kalpa, Kulla in Himachal Pradesh, Ziro Anini, Daporijo and Seppa in Arunachal Pradesh, Jaisalmer in Rajasthan, Srinagar (Garhwal), Joshimath and Uttarkashi in Uttar Pradesh and Campbell Bay, Diglipur, Maya Bunder in the Andaman and Nicobar Islands. New services like vide conferences, computer networking, news dissemination services through satellites will also be introduced during the Seventh Plan, to give an impetus to trade, commerce, banking and allied economic activities. [Text] [New Delhi PATRIOT in English 6 Jun 84 p 5]

TELEVISION TRANSMITTER COMMISSIONED--The 48th television transmitter in the country was commissioned today at Sri Ganganagar in Rajasthan. It has a range of 25 km and will cover a population of nearly 250,000. It is the first of the series of TV transmitters to be installed during the next 4 months as part of the expansion plan for providing TV coverage to 70 percent of the population. [Excerpt] [BK060407 Delhi Domestic Service in English 1530 GMT 1 Jul 84]

BROADCASTING STATIONS USED BY MILITIAS SURVEYED

London AL-TADAMUN in Arabic No 63, 23 Jun 84 pp 39-40

[Article by Muhammad ash-Shami: "The War on the Airwaves"]

[Text] In the throng of solutions and political projects which are going back and forth between the ceasefires and violations, the pursuit of kidnappings by counter-kidnappings and preemptive kidnappings, the opening of crossings and passages and the alternation of agreement and disagreement, there remains a basic matter which poses a danger to agreement and to achieving the slogan of national unity, a greater danger than the war of shelling, sniping and contact lines; it is [the danger of] a war of talk over the ether, a matter of Lebanese media in general and especially a matter of the "private radios" which have stuck up their heads here and there since the outset of the 1975-1976 war.

Those meeting in the "Bayt al-Din Assembly" trace this to 1977. They agreed at that time on the necessity of closing all of the "private radios" but some became concerned on some pretext, or without pretext, and the fabricated clamor which followed forced the warriors to bury this subject, as they have done with other subjects and problems, pending future developments.

At the end of last month, in the emergency session which the Lebanese Cabinet held, the decide on the final formula of the ministerial communique, this problem was raised again so that it might be solved by increasing the government's stability in information, thereby playing an important role in supporting the government line in realizing its slogan of "national unity."

What are these broadcasting stations? What is the object of building them? What do their owners or patrons say about them?

We will begin with the Lebanese radio station or "Radio Lebanon." This is the official radio station, whose policy is controlled by the minister of information. This radio began broadcasting its programs under the name of "Near East Radio," changed after that to "Radio Beirut From Lebanon" and finally to "Radio Lebanon From Beirut." It was subjected to a number of setbacks, the last of which was in 1976 when it split into two parts for a period of over 7 months and began transmitting from two different places. The first of these was the quarter of al-Sina'i' in west Beirut, where its main center was,

controlled at that time by the "National Movement" and the "Army of Arab Lebanon." The second was in the town of 'Amshit in the district of Jubayl at the transmitter center. The "Lebanese Front" alliance forces controlled it and the 'Amshit radio station was under the direct supervision of the President of the Republic, who at the time was Sulayman Franjiyah. It broadcast his speeches and official political activities, while al-Sina'i radio opposed this. At the beginning of the President Ilyas Sarkis administration, it was reunified but weakened its programs and its transmission so that the majority of the listeners gradually switched to the programs broadcast by the "private radios."

The private radios are:

Radio "Voice of Lebanon"

This radio was established in 1976 by decree of former President of the Republic Sulayman Franjiyah. Its policy is determined by the Lebanese Phalangist Party. Its artistic programming often is equal to other radio programs in seriousness and diversity. This station is located in the al-Ashrafiyah District of the capital's eastern half. The "Lebanese Phalangist" Party had previous experience with the station during the events of the summer of 1958, in the administration of former President Camille Sham'un, when its broadcasts were limited to political commentary and critical songs. The most famous among these were the commentaries of Abu Alhan, or the poet Fu'ad Haddad, who was assassinated at the end of these events.

"Voice of Arab Lebanon" Radio

This is the number two radio in terms of transmitting power and artistic programming. It was founded by the Independent Nasirite Movement (al-Murabitun) in 1976. After a conflict over the fate of the private radios, the Nasirite Movement was able to get an allocation for it in 1981 from the government of Dr Salim al-Huss during the administration of former President Ilyas Sarkis. Its equipment was stolen or damaged on the eve of the Israeli destruction of Beirut, forcing it to stop [transmitting] for a time, but it soon returned to its former level of programming. Its location is in the quarter of al-Mazra'ah in the capital's western half.

"Voice of Free Lebanon" Radio

Current organ of the Lebanese Forces (the military wing of the Lebanese Front), it is not recognized officially. It was founded in 1977 on the eve of the battles which went on between the Phalangist militias and the Syrian Army (Arab Deterrent Forces).

"Voice of the Mountain" Radio

Newly commissioned, it speaks with the voice of the Progressive Socialist Party and is located in the town of Shanayh in 'Alayh District. It opened on the eve of the most recent mountain war, at the end of 1983. There is no official support from the authorities for this station to broadcast legally.

### "Voice of the Arab Revolution" Radio

It was founded with the support of two local organizations, the Army of Arab Lebanon commanded by 1st Lieutenant Ahmad al-Khatib and the Workers' League headed by Deputy Zahir al-Khatib. This station was shut down by military action during the Israeli destruction of west Beirut after its equipment was stolen or damaged. It resumed broadcasting after the return to power on 6 February of the leftist parties and forces in the western half of the capital.

### "Voice of Hope" Radio

Located in the town of Marj-uyun in occupied southern Lebanon, it is the organ of the militias allied with Israel there, the army of free Lebanon, founded by dissident Major Sa'd Haddad in 1979 after the Israeli destruction of villages in the south (the border strip) and declaration of the so-called state of free Lebanon.

### Radio "Free and Unified Lebanon"

Organ of the "al-Maradah" forces led by former President Sulayman Franjiyah, it is located in Zgharta, northern Lebanon. It was founded in 1979 and is not recognized officially by the Lebanese authorities.

### "Voice of the Islamic Revolution" Radio

Located in the city of Ba'labakk in the al-Biqa', it specializes in the broadcast of speeches, sermons and spiritual guidance in Arabic and Persian which call for "the outbreak of the Islamic revolution" and which feature verses from the Holy Koran. This station was founded with material and moral support from Iran. It is supervised by "Hizb Allah" which is led by Shaykh Subhi al-Tufayli and by Islamic Amal led by Husayn al-Musawi.

### "Voice of the Homeland"

A new station still in its experimental development, it began transmitting at the outset of this month. This station is the organ of the Islamic al-Maqasid Association, which is supervised directly by Tamam Salam, son of Beirut leader Sa'ib Salam.

### FM Radios

In addition to this, there are a considerable number of private stations which broadcast their programs on shortwave (FM). They are far removed from political interests and politicians. They are not concerned with anything but artistic, musical and informational affairs. These stations broadcast in French and some use French and English together. Among them are: "Mont Libon" radio which broadcasts its programs on 97 mHz, Magic 102 radio which broadcasts on 102 mHz, and 104 Radio. One prominent shortwave radio is "Radio de la Jeunesse" which broadcasts its programs on 106.6 mHz. Its distinction is that it offers nothing but Lebanese and Eastern songs and music. In

addition, there are "Voice of the Artists," "Radio of the Start," etc., but these radios, as we have mentioned, remain specialized in music and songs.

#### The Television War

In the information war, the private radio stations have led to private television stations, some of them in operation and some of them just about to open. In the occupied south, there is "Free Lebanon" television, which is the mouthpiece of the army of free Lebanon forces. It broadcasts all of its programs in English. As a result of the civil war, Lebanon Television was split in two under pressure from the forces controlling each region. In the northern province, the split was aggravated as a result of the disruption in broadcasting from the province, the employees of the "Voice of Free and Unified Lebanon" radio began broadcasting the news daily at 8:00 p.m. The "Independent Nasirite Movement" and the "Lebanese Phalangist Party" each have a private television station. The former bears the name "Arab Lebanon Television" and the latter is called the "Lebanese Establishment for Broadcasting," which was set up by the late President Shaykh Bashir al-Jumayyil. Its original studios were constructed in Juniyah. The two have ceased operation but from time to time they broadcast experimental programs. They are competing with each other to broadcast their programs on Channel 12, which is the only available television frequency.

#### Many Reasons--One Solution

In the midst of this informational strife, a number of politicians are demanding that effective steps be taken to close or consolidate these stations, or to supervise their operations. In spite of the fact that discussions have dealt with the role that the private stations are playing at this particular time, most of those concerned with the matter confirm the necessity of allocating a special session of the National Assembly to studying the information situation in general and finding solutions to "special information." A ministerial committee has been formed headed by Prime Minister Rashid Karami with Minister Nabih Birri and Minister of Information Joseph Skaff in order to follow up on the matter.

In light of this, Minister Shaykh Pierre al-Jumayyil remains determined in his position of refusing on principle the investigation of this subject lest it should involve "Voice of Lebanon" radio under the pretext that the radio is carrying out its role by the official authorization of the Lebanese Government during the administration of President Sulayman Franjiyah.

In the face of this position, Minister Walid Junbaltt has expressed reservations regarding any resolution which calls for closing the private stations, emphasizing the necessity of dealing with this subject without prejudice.

For its part, the "al-Murabitun" command told AL-TADAMUN: This contest does not concern us. First of all, the "Voice of Arab Lebanon" depends for its legitimacy on the nationalist and Islamic masses, and secondly, the station is officially recognized by republican decree issued in 1981 and signed by former President Ilyas Sarkis, Prime Minister Dr Salim al-Huss and Minister of

Information Michel Iddih. According to this decree, the radio station bears the name of Voice of Arab Lebanon--al-Murabit Establishment for Information and Promulgation.

Tamam Salam, head of the Islamic al-Maqasid Association, stated that the association would work toward opening a television transmitter, since it has achieved its first step of opening the "Voice of the Homeland" radio station. Concerning this, Tamam Salam said to AL-TADAMUN:

It is as much our legal right to open a radio or television station as it is to publish a newspaper or magazine by virtue of our living in a free, democratic country. When the problem of private stations is solved, we are first among those who pledge themselves to any resolution issued by the Lebanese authorities.

Finally, what is the position of the Lebanese authorities within this framework?

Sources at the Ministry of Information stated that there is a draft being studied behind the scenes which stipulates unifying the private stations within a "Greater Lebanon Radio Project," in which work would be carried out to expand the official radio, develop it and boost its transmission. The basic cadres in the other private stations are involved with this, and these sources added that this project is likely to be presented to the Cabinet in the session which is devoted to the study of the informational situation in Lebanon.

For his part, Prime Minister Rashid Karami said that, on this subject of the air waves, his opinion necessarily agrees with the necessity of unifying Lebanese information in order to carry out the new government policy to dispense with these forms, because it is no longer conceivable that information should remain in this sick state.

In the midst of this uproar, a question arises about the potential for success by the authorities, represented by the three-man ministerial committee, in their task of unifying the official information establishments or of remedying the matter of private stations.

Are the new projects being studied at the present time going to be put into the officials' drawers until Judgment Day? Until these [projects] are realized, citizens remain helpless between the spoken word of the bullet and the pen of the liars, lost in the labyrinth of the road to truth.

CSO: 5500/4516

SUPARCO DIRECTOR SAYS ISLAMIC COUNTRIES SOON TO ENTER SPACE AGE

Islamabad THE MUSLIM in English 23 Jun 84 p 8

[Text]

VIENNA, June 22: The Islamic countries will soon enter into the space age with the establishment of a joint "Space Research Institute", Salim Mahmud, chairman, Pakistan's Space and Upper Atmosphere Research Commission (SUPARCO) told the Kuwaiti News Agency (KUNA) here on Wednesday.

The space project jointly sponsored by the Organisation of Islamic Conference (OIC) member states one of the 23 scientific plans undertaken by the Muslim states.

Mr. Mahmud, a prominent representative of the Muslim community at the United Nations committee on peaceful uses of outer space now meeting here, said that taken alone, these schemes "represent strong prospects for the revival of Islamic science."

He said most scientists regarded space research as "the fruit of Western civilisation", but he added "the truth is that Western science is built on what the Arabs and other Muslim peoples achieved". They laid the foundations of mathematics and astronomy and passed on their knowledge to others.

He blamed political fragmentation and colonialism for the decline of Arab science, but these factors can no more prevent its revival. The Islamic countries after joining hands in space project would also be able to find solutions to many scientific problems, he added.

Remote sensing of the earth by satellite was the technique which would be of immediate importance to the Islamic and other developing countries. Projects which should be undertaken through satellite observation are studies on the formation of deserts, the process whereby major deserts encroach upon, year by year on fertile land.

The mapping of water resources, water logging and salinity and the charting of geological and morphological structure in the various territories are among the priority project, Mr. Mahmud said.

Some 20 countries currently pay to the U.S. licensing fees to operate earth-based receiving stations, capable of receiving information from 'Landsat'. These included India, Brazil and Thailand, and Pakistan was planning to build a similar station, he said.

Sufficient information was now being received on earth to make rapid advances on several major development projects but he said developing countries faced problems of the "availability of information" with satellites such as 'Landsat'. They needed full assurance of continued data availability if they were to invest in tracking stations, he said. "Landsat 4" had gone out of operation last year. There was a lapse of many months before "Landsat 5" was launched on March 1, this year.

He said the timely availability of specific information for projects was also vital—and the price of information also caused some problems. He said the "Landsat" fees had tripled in the past year.

The SUPARCO Chairman said, "there must be more than one satellite available" but while more countries were now in a position to launch their own satellites, he warned that the systems must be made compatible so that earth-based stations could continue to receive data.

He added that the remote sensing satellites did not produce views with sufficiently high resolution to be of any use for spying on military or other activities.

Commenting on a breach in the U.N. committee, caused last week by the withdrawal of the United States delegation from discussion

on militarisation of space, Mr. Mahmud welcomed the return of the Americans and said he felt the work of the committee was in no way threatened.

He said: "this is the only standing committee reporting directly to the U.N. General Assembly on space affairs. No one can doubt the immense and growing importance of space exploration in international affairs."

The committee was "By necessity" going to face problems as its size and the complexity of its work grew, but it would overcome the problems and would "most likely be one of the most important U.N. bodies" of the future.—PPI

CSO: 5500/4737

TELEPHONE OFFICIAL TALKS OF EXPANSION PLANS

Islamabad THE MUSLIM in English 22 Jun 84 p 8

[Text]

ISLAMABAD, June 21: The Pakistan Telegraph and Telephone Department will further expand its network during 1984-85 and sanction over 60,000 new telephone connections.

This was stated by the Director-General, Pakistan Telegraph and Telephone Department, Brig. Mansurul Haq Malik in an interview.

The Director-General said the government has allocated an amount of Rs 160 crore for the department in 1984-85 budget. He said main stress during the year will be laid on maintenance side. The year will be marked as a year of "maintenance year" he added.

For this purpose special efforts will be made for the replacement of equipments and installation of new equipments.

The department, during the outgoing financial year, sanctioned

55,000 new telephone connections. Significant progress was made during the year. The network of telecommunications was expanded within the country which includes expanded local telephone system, microwave, satellite systems, coaxial cable systems, carrier VFT systems, VHF/UHF systems and laying of open wire lines and digital electronic exchanges.

Substantial progress has been made in respect of overseas communications. Pakistan is linked with 28 countries through satellite communication system. Total number of overseas channels via satellite are 471, out of these 452 are speech circuits and 19 telegraph record circuits. 140 telephone circuits, were added via satellite communications during July-March 1983-84.-PPI

CSO: 5500/4737

DIGITAL EXCHANGE FOR LAHORE

Islamabad THE MUSLIM in English 23 Jun 84 p 6

[Text]

LAHORE, June 22: The most modern digital electronic telephone exchange, second in the country will start functioning in Lahore within a month's time, it was learnt.

The digital exchange with 10,000 lines has been installed in the newly constructed building on Shahra-e Quaid-e-Azam at a total cost of Rs. 7.50 crore.

At present Pakistani engineers are trying their best to complete the installation work with the assistance of Swedish experts in time.

The first digital electronic exchange was installed at Karachi and it has been working satisfactorily.

Meanwhile, in an interview with PTV, the Director General of Telephone and Telegraph department, Mr. Mansoor Ul Haq said that the T and T department has given one lakh and 20,000 new telephone connections to its subscribers in the country during the last two years.

He said that the department has been expanding its tele-satellite links with the outside world besides improving telecommunication facilities inland. According to a programme he added, the present capacity of 600 (8.3) of the Karachi gateway exchange would be doubled next year as and for this purpose an order had been placed with an organisation for an additional exchange.—APP

CSO: 5500/4737

ZAIRE

APPROVAL GIVEN FOR NEW RADIO TRANSMITTERS

EA051405 Dakar PANA in French 1030 GMT 3 Jul 84

[Text] Kinshasa, 3 July (AZAP/PANA) — The Zairean Government Executive Council, at a meeting last Friday chaired by Marshal Mobutu Sese Seko, president of the MPR, Zaire's state party, asked the State Commissioner for Information and MOPAP [Mobilization, Propaganda, and Political Action] "to pursue all the required procedures for putting up transmitters at ground-stations to improve the range of Voice of Zaire".

This concerns the 14 FM broadcasting transmitters which the French Government has offered to the Zairean Government to help it rehabilitate its broadcasting network. In fact, Zaire has a modern network of satellite telecommunications codenamed "Rezatelsat" made up of 13 ground-stations and 17 television transmission centers set up throughout the country, thus allowing maximum radio and television coverage for this large territory.

The radio transmitters were obtained following the president of the Republic's official working visit to France last April during which Zaire asked France to put as a matter of priority on the agenda of negotiations on bilateral cooperation the rehabilitation of radio and television transmitters, as well as an extension of television coverage to the rural areas.

CSO: 5500/88

USSR

WEST'S POSITION AT UN INFORMATION TALKS HIT

LD091415 Moscow TASS in English 0924 GMT 9 Jul 84

[Text] New York, July 9 TASS -- At the session of the U.N. Committee on Information, which has ended here, young independent states reiterated their demands that the West should put an end to the practice of "information imperialism," that a new, more balanced international information order be established. The participants in the session criticized the stand of imperialist powers which hamper in every way formation of national mass media in Asian, African, and Latin American countries.

Having expressed support for the striving of developing states to work for a more fair information exchange, the socialist countries stated that this exchange should be conducted on the basis of generally recognized norms of international law, respect for sovereignty, non-interference into internal affairs of other states.

Speaking at the session, representative of the USSR Yuriy Kashlev denounced the subversive activity of such Western radio stations as "Liberty," "Free Europe," "Radio Marti," and others. He drew the attention of the participants in the session to Washington's dangerous plans aimed at U.S. ideological expansion with the help of television programmes through communication satellites.

Most of the participants in the session declared against the Reagan administration's attacks on UNESCO, and also attempts of Western representatives to smear the information activity of the United Nations, aimed at attaining disarmament, consolidating peace and international cooperation. Socialist countries proposed that a package of information measures be carried out within the framework of the United Nations in connection with the coming 40th anniversary of the victory over fascism and formation of the United Nations Organisation.

Because of the obstructionist stand of Western countries, the session of the U.N. Committee on Information failed to elaborate concluding documents for the first time ever during its existence. The decision was taken to hold additional meetings early in September this year.

CSO: 5500/1023

EUROPEAN INDUSTRY SEEKS STANDARD TECHNOLOGY, STRATEGY

Paris L'USINE NOUVELLE in French 14 Jun 84 pp 42-48

[Article by Herve Rolland, followed by an interview with Louis Mexandeau, French minister of post and telecommunications, by Alain Pauche and Herve Rolland; date and place of interview not specified]

[Text] "Acting and working for the establishment of a European space in telecommunications." That is how Louis Mexandeau, [French] minister delegate to the minister of industry and research for post and telecommunications, sums up France's action in that field. And in Brussels, Etienne Davignon is talking the same way.

At the end of May, the European commissioner for industry presented a plan aimed at concerted development of the entire European telecommunications industry over the next 10 years. The plan, which is to be discussed during the European summit meeting in Fontainebleau at the end of June, calls for the joint determination of research strategies among the states and, as a first step, the granting of 10-percent reciprocity between national markets. The commission also anticipates spending 200 million francs on research programs by the telecommunications industry.

Repeating to some extent the role it played in aeronautics (with the Airbus) and aerospace (Ariane), France is again playing a leading role in promoting industrial Europe among its partners. According to Louis Mexandeau, industrial Europe is playing a crucial card in electronics after its many failures in data processing and components.

The last chance for electronic Europe lies precisely in the telecommunications industry, a sector where it still plays a world role and which may enable it, through the introduction of new services and their integration with single networks, to regain a good share of the ground it has lost. The reason is that in the future, the essential thing will be not so much data processing as the transmission of information in the broad sense (data, voice, video, and so on). And in that area, the problem is one of communication.

Now that the effects of the demonopolization of AT&T in the United States and then of the NTT (Nippon Telegraph and Telephone) in Japan are reaching Europe's shores (beginning in Great Britain), the confrontation is going to grow increasingly harsh.

A technology whose development is exponential is drastically altering the market picture and the still-ponderous state-controlled systems, which are becoming increasingly less well adapted to the explosion of new equipment and services that require new methods.

What the French PTT [Post and Telecommunications Administration] and the EEC are hoping for is a joint redefinition while there is still time, because the hegemonic desires of companies like AT&T, ITT, and IBM-Rolm or the NEC [Nippon Electric Company] and Toshiba are threatening to disrupt the precarious equilibrium that now exists.

But the ardor of the French and of the EEC, which are now sounding the alarm, stands in contrast to the attitude--reserved, to say the least--of other European officials. The only response has been a few voices raised within the Community. One of those speaking up was Herman de Croo, Belgian minister of posts, telegraph, and telephones, who is worried that "we are going to continue to be dominated by American and Japanese systems." It was a forceful statement, but unfortunately, nothing much came of it. Two U.S. companies--ITT and GTE--already share the Belgian market for public telephone equipment between themselves. ITT has a large subsidiary--Bell Telephone Manufacturing--in Antwerp, and that subsidiary has played an important role in refining and marketing its System 12 (electronic switching). When he met with Louis Mexandeau last 16 April to discuss closer ties of cooperation between the two countries, Herman de Croo said that he would not be prepared to open up a portion of the Belgian market until 1987. The only comment by Jacques Dondoux, boss of the DGT [Directorate General of Telecommunications], was: "Mr de Croo's actions will certainly be in line with his statements."

Another European voice also calling for a "Common Telephone Market" is that of Romano Prodi, chairman of the IRI [Industrial Reconstruction Institute], Italy's state-owned holding company, who reigns over 520,000 employees on that side of the Alps. But one of the companies controlled by the IRI--STET [Telephone Finance Company]--is contemplating agreements with IBM, the world's No 1 firm in data processing, which has been moving into telecommunications since it joined forces with Rolm in 1983. Romano Prodi's explanation: "We will sign agreements with IBM in some sectors, but not in the field of telephone exchanges." In reality, as part of the Itapac program (which, like France's Transpac, is a packet switching network), IBM might be given responsibility for supplying the hardware for interfacing between that network and its subscribers. That would be a remarkable commercial advantage for IBM, since it would be a prelude to supplying products meeting IBM's own standard and compatible with those interfaces, something that cannot be said for the equipment produced by other manufacturers!

Why such a seeming lack of interest on the part of France's partners? Several reasons can be suggested. First of all, the situation in the communications industry is good overall, unlike that in the electronic and data processing sectors. For example, the EEC's trade balance is highly favorable, amounting to nearly \$2 billion in 1983. Jacques Dondoux recalls: "About 50 percent of the world's exports of telecommunications equipment come from the EEC." Richard Reynolds, chairman of Telecom, a subsidiary of Great Britain's GEC, has

the same explanation: "Actually, we have a good European industry. There are many companies in the field in Europe. They are practically all profitable. Anyway, having just one manufacturer does not necessarily make things better."

The partners are more wary because Europe's financial situation in the field of telecommunications is currently good. But there are other obstacles to a joint policy in this area. The first argument, and a weighty one, states the nature of the problem specifically: the Airbus and Ariane were new products and led to the setting up of industries of a new kind in Europe--something that is relatively easy. But this is not the case with the telecommunications industry, whose burdensome legacy cannot be forgotten: the structures already exist, and the past has already determined part of the future (standards, technical choices, investments, and so on). Marisa Bellisario, director general of ITALTEL, Italy's principal telecommunications firm, observes: "Everyone agrees on the Community philosophy, but consideration must be given to the situation in which we find ourselves."

#### Minimum of Common Standards

There are many "unwieldy facts" making the burden a little heavier.

There is the technical aspect, to begin with: the problem of standards and specifications. Christian Fayard, general manager of CIT-Alcatel [International Telephone Company-Alsatian Company for Atomic, Telecommunications, and Electronic Construction], notes: "There are only a minimum number of common standards in Europe." In fact, each European country has entrenched itself behind its own specifications to protect its markets. "The various European technical standards present considerable difficulties," admits Sir George Jefferson, boss of British Telecom, "and they result in incompatible systems."

Manfred Lange, head of research and development for the West German Post Office, describes the implications of this situation: "The PTT in each country cannot buy just any equipment. The West German Post Office, for example, is constrained absolutely by the fact that all new equipment must be compatible with the equipment already being used in our systems." Adapting products to foreign standards is a long and costly process. Moreover, it requires consent by the country's authorities, something that is sometimes long in coming. Thomson discovered that with its Thomfax facsimile machine--2 years of effort were required to obtain a West German certificate of approval.

And that is the second "unwieldy fact": administrative structures that protect national markets. Relations among telecommunications administrations are not neutral. Inevitably, they are part of the political relations among the various nations, the nature of which they cannot control. Moreover, there are structural differences. The West German Post Office guides equipment policy in the FRG with a firm hand. British Telecom, on the other hand, is in the process of privatization. Sir George remarks: "We have completely different structures. In Great Britain, everything is moving toward private ownership. The situation in France is the opposite: the state controls everything. Those structural differences pose a problem of complementarity." The consequence is the nature of the markets, which are far from homogeneous from industry's standpoint."

Luigi Mercurio, head of office automation and telecommunications for Italy's Olivetti firm, explains: "The market is huge, but completely heterogeneous. Each country protects its own industry, with the result that there is no way for a firm to be really present everywhere in Europe. Controlling 10 percent of the total European market is much more attractive than controlling half of one's domestic market. But industrialists prefer the latter solution, which is easier."

As a direct consequence, there is another difficulty: the dispersed industrial structure of telecommunications Europe. The large number of medium-sized or even weak captive markets has created a veritable web of small firms in Europe, where they are much more numerous proportionately than they are in the United States or Japan. "It will not be easy to create a European communications industry out of the fragmented situation we have today," says Marisa Bellisario.

#### Incompatible Hardware and Technological Disparities

The final obstacle to Europe-wide rationalization: the disparities. At the start of 1983, for example, the telephone subscriber rate in the FRG was 37.3 percent, compared to 25 percent in Italy. From the technical standpoint, there are also technological differences in addition to the incompatibility of the various kinds of equipment. As one example, the FRG is far behind its partners in changing over to digital (that is, electronic) switching.

Manfred Lange explains: "We have chosen 1985 as the date for actually starting up the programs for that type of equipment. But the technical personnel for maintaining those exchanges are far fewer in number than the personnel for maintaining electromechanical exchanges. Furthermore, the skills necessary for maintaining electromechanical exchanges are useless when it comes to digital equipment. So we must retrain our personnel in 5 years, and that is not much time. Harmonization among Europeans is not so easy--you don't change your technology from 1 month to the next."

The disparities, which are directly related to the captive nature of the market for public equipment, are certainly the main difficulty. Manfred Lange goes on to say: "The EEC's argument seems convincing, but its way of proceeding is a little too technocratic. Its concern is understandable, but what is necessary is to take everything into account and evaluate the practical possibilities realistically." His opinion is shared by Marisa Bellisario: "We Europeans must be very attentive to our own weaknesses and avoid moving ahead too fast. It is probably better to solve our own internal problems first so as to increase the chances for fruitful cooperation among Europeans."

The past still weighs heavily on people's minds, and it will continue to do so for several years to come. Louis Mexandeau sums it up this way: "There is a contradiction between the need to move fast--a need that the European circles concerned agree on--and the weight of traditions."

Need to move fast? Yes, because several threats are hanging over communications Europe.

Technology is the first. The boundaries were still very clear scarcely 10 years ago between data processing, electronic components, office automation, and telecommunications, but they are tending to disappear in the face of new concepts: data transmission and integrated services digital networks are expressions belonging to a new vocabulary. What they mean in plain language is use of the same equipment to transmit and process all information--data, video, and voice--at faster and faster speeds.

Two conditions are necessary for taking this new technological step that will bring industry into the 20th century: the first is a tremendous amount of financing for research and development--made necessary by the levels of complexity and performance in tomorrow's system--and the second is mastery of all the technological sectors concerned.

One of the major weaknesses common to all the Europeans shows up here: their dependence on the United States and Japan for electronic components and large-capacity computers.

Another important fact--and for Europe it represents both an opportunity and an indirect threat at the same time--is that the demand for telecommunications equipment is spreading throughout the world. The growth rates in the Asian, African, and Latin American markets over the next 5 years will be higher than those in the industrialized countries. This is an opportunity for Europe if it can satisfy those new needs, but it is also an indirect threat because the giants already in existence (GTE, ITT, and Northern Telecom) are being joined by new competitors: AT&T, free to do what it likes outside the United States since the deregulation that became effective on 1 January 1984, and the Japanese, headed by the NEC. By conquering new world markets, all those firms can achieve equipment production levels that will price their products far below European products.

This is a big danger for Europe, where the trend toward demonopolization is becoming clearer. Sir George says unambiguously: "With the privatization of British Telecom, our market will become the most liberal anywhere in Europe. The political aspect will have less and less influence on the choice of equipment. Everything will depend on efficiency and competitiveness."

Besides the traditional firms in the telecommunications industry, all the important firms in related industries, and especially data processing, are announcing their intentions. The European market has already been heavily penetrated in this field, not only by IBM but also by DEC (Digital Equipment), Fujitsu, Honeywell, and Wang.

American and Japanese firms have increased the number of their agreements with their European counterparts and occupied positions in Europe itself. AT&T has signed an agreement with Philips covering public telephone equipment and with Olivetti covering business communications. Fujitsu, Great Britain's ICL, and Siemens have a joint agreement. Olivetti distributes PABX's produced by Canada's Northern Telecom. British Telecom, after choosing the American AMPS standard for its cellular radio network, has just signed the first contract

## Telecommunications Markets: Private Exchanges Gaining Ground

### European Telecommunications Markets (in billions of 1984 francs)

Description	1980	1985	1990
Public telephone equipment	53	72	80
Transmission	17	24	38
Private telephone equipment	9	15	27
Telex and data	5	9	13
Telephone terminals	6	10	12
Totals	90	130	170

From 1980 to 1990, public telephone equipment's share of the European market will drop from nearly 60 percent to 47 percent. Data transmission and especially private switching (PABX and local communication networks) are the two sectors that will set the pace in the future.

Source: L'USINE NOUVELLE

with the NEC for supplying mobile telephone equipment worth nearly 100 million francs.

Those are solid agreements, and they also represent solid industrial establishment in Europe. GTE and ITALTEL manufacture the various systems making up Italy's Proteo TDM switching exchange, for example. ITT has industrial subsidiaries in the FRG (Standard Elektrik Lorenz), Italy (Face), and Belgium (Bell Telephone Manufacturing). And those are all firms providing work for Europeans. Marisa Bellisario explains: "Even if it is linked to AT&T, can anyone deny that Philips is European? But this does not mean that AT&T products are European, and that is the problem."

### Europe's Fight Disorganized

Is it possible to decide in the case of IBM, which produces the Bildschirmtext--the equivalent of France's videotex--in the FRG? "Considering that at least 90 percent of the work is done in the FRG, is it an American or a European company?" asks Manfred Lange. "Except for specific familiarity with the software, on which we get help from abroad, the Bildschirmtext is completely designed and built in Boeblingen. I admit that this is only one way of looking at the problem, but those are all German jobs." This is one area in which it is difficult to deny the West German Post Office's pro-European spirit, since it began by buying the license for the British videotex--the Prestel--which it finally had to abandon because of software limitations. Only then did it choose the IBM system.

One is forced to recognize that in facing up to the "bridgehead" strategy of the Americans and Japanese, Europe is fighting in a disorganized manner. First of all through the fragmentation of the European market, which prevents any

TDM Switching Systems Chosen by EEC Countries as of 1 January 1984

TDM system	Country of origin	Firm	United Kingdom						Number of countries adopting the system
			FRG	France	Italy	Holland	Ireland	Denmark	
System X	Kingdom	GEC, Plessey	X						1
ITR 1240 <sup>1</sup>	(USA, Belgium)	ITT	X <sup>2</sup>						3
EWS-D	FRG	Siemens	X						1
Proteo	Italy	ITALTEL	X						1
E-10	France	CIT-Alcatel	X						2
MT20/25	France	Thomson	X						1
AXE	Sweden	Ericsson		X <sup>2</sup>					4
PRX <sup>3</sup>	Holland	Philips		X					1
Number of systems adopted in each country			1	2	2	3	2	2	1
									1

1. System designed by ITT (U.S.) with sizable participation by its Belgian subsidiary BTM (Bell Telephone Manufacturing).
2. ITT has a West German subsidiary (SEL (Standard Elektrik Lorenz)) and an Italian subsidiary (Fatme). Ericsson has an Italian subsidiary (Fatme).
3. Since the AT&T-Philips agreement, this series has been called the 5 ESS-PRX.

In addition to the System X developed by GEC and Plessey, Great Britain may purchase another European system (the French E-10 or Ericsson's AXE). In return, France may buy the British System X to cover 10 percent of its market.

Source: L'USINE NOUVELLE

economy of scale. Marisa Bellisario admits: "Our markets are too narrow to allow our industrialists to find adequate financing sources." There is also a difficulty that is more diffuse because it is linked to mentalities: it is the degree of mutual distrust that exists between neighbors who have long observed each other across their frontiers and must now start talking things over. This is confirmed by Louis Mexandeau: "Contrary to what one might think, Europe is still highly compartmentalized. Meetings between PTT ministers were very rare just a few years ago. That traditional behavior must be shaken off."

Is the current situation in telecommunications Europe beyond help? "No," answers Marisa Bellisario, "the European telecommunications industry still has a chance. But while it is necessary to advance in a very pragmatic manner, this does not rule out moving fast."

The first problem, which conditions any start on a European technical solution, is the setting up of a homogeneous system of standards. One first giant step was taken last 19 January at the meeting by the CEPT (European Confederation of Posts and Telecommunications). Jacques Dondoux, the current chairman of the CEPT, explains: "Twenty-six national administrations operating telephone systems for 400 million Europeans agreed to set up a permanent secretariat in Paris for a commission that is to establish standards for all of Europe."

In addition, the CEPT is now responsible for setting up "joint certification procedures" for both telephone and telematics terminals. Those are key decisions whose implementation will certainly take some time, but they are the prelude to a genuine opening up of national markets. Jacques Dondoux says: "The CEPT steamroller has started up, and that is the main thing."

The effort to institute Europe-wide standards must be linked, however, to the worldwide standardization now underway so that European equipment can be exported to the new markets.

A logical stage following standardization will be cooperation in research and development. In 1982 the Europeans spent \$5.26 billion on R&D, compared to \$6.7 billion in the United States and only \$1.9 billion in Japan. The Europeans are making as big an effort as the Americans. "The only way to build telecommunications Europe would be to pool all our financing resources for research and development," says Marisa Bellisario. Sir George agrees: "We must establish long-term objectives in the field of cooperation."

The catalyst exists: it is the ESPRIT [European Strategic Program for Research and Development in Information Technology] program, which links data processing, electronics, and telecommunications. It presents the advantage of increasing the opportunities for meetings and cooperation among industrialists.

Manfred Lange recalls: "Just as is true with the ESPRIT program, there exists a plan for telecommunications research that was launched by the EEC. We have entered an active phase of discussion, and for its part, the West German Post Office has made constructive proposals in that direction. But there as in other areas, we must admit that it is not easy to come up with a solution that pleases everybody. We are taking small steps on the path to cooperation, and

everyone is watching everyone else. That is why the real initiative must be industrial."

What do those concerned think? Luigi Mercurio says: "We envisage cooperation only with 'winners.' We need to sign agreements only with those who possess very advanced technology." Christian Fayard, manager of CIT-Alcatel, expresses another point of view: "I agree completely with the idea of trying to build European alliances, but on condition that the advantages are shared. We are open to any proposal, but the difficulty is in finding specific projects." Meanwhile, Christian Fayard makes no secret of the fact that his priority is to take advantage of deregulation in the United States to win part of the market there.

Specific projects do exist, however, and their number can be increased. CIT-Alcatel and ITALTEL have been working for 3 years on the definition of "modules" usable on both the Italian Proteo and the French E-10 TDM switching exchanges.

"We must abandon the idea of a single European system for the short term. But if we begin today to develop common modules (meaning common languages in the case of software and identical components in the case of hardware), that would permit a certain kind of compatibility and improve our competitiveness," says Marisa Bellisario. "It is a good way to reduce investments, and it is the best starting point for a possible common generation in the future."

Other projects have already been completed. One example is in the area of satellites, where cooperation under the aegis of Eutelsat is proceeding under the best auspices. Other areas--built around the principle of a "European artery" of optical fibers, for example--are being explored. This would involve a sort of "communications freeway" on a Community-wide scale. As was true with Ariane and the Airbus, the existence of a big joint program of this type is essential. The idea for an intra-Community wide-band network linking the PTT administrations of member countries with ties to the EEC as well as the Community institutions (the INSIS project) is being studied in Brussels.

The last action that can be considered--and the one that can be completed most quickly--is also the most sensitive: the mutual opening up of markets, an idea that is keenly supported by France. "We are ready to open up 10 percent of our markets," emphasizes Jacques Dondoux, "but on the basis of reciprocity. Bilateral agreements to begin with seem preferable to us."

Incidentally, France has set the example by opening up a market for 200,000 telephone sets to West German firms. In addition, France and Great Britain are jointly studying the opening up of 10 percent of each one's market for public telephone equipment to the other: France would buy the System X, which has now been developed by GEC and Plessey, while British Telecom would order E-10 exchanges from CIT-Alcatel. "Mutual exchange is favorable to the climate of competitiveness, but it must be based on a commercially advantageous foundation," warns Sir George. "We are engaged in discussions with other European countries, and we are not ruling out the possibility of buying a system other than the E-10."

And here we touch on one of the most widespread but rarely expressed fears: that measures on a European scale might upset the equilibrium among the parties involved and expose them to dangers with no quid pro quo. "It is not a question of replacing a monopoly by one firm in one country with a monopoly in two countries," observes Sir George.

The presence of non-European companies on the soil of the Old Continent is a disturbing factor from the standpoint of a brutal opening up of markets. Manfred Lange notes: "We must consider the fact that an opening up in Europe can only be quite broad if it is to be truly effective. There is a danger that it will not be watertight at all levels." His concern is shared by Marisa Bellisario: "If it is not done correctly, the opening up of markets will involve two dangers: that of giving an advantage to non-Europeans who are more or less established already and, in the long run, that of destroying telecommunications Europe."

Another fear is being expressed, and it is linked to the opening up of markets. The fear is that decisions reached at the European level will further increase the complexity and sluggishness involved in managing the telecommunications sector without effectively reducing the constraints.

Lastly, the opening up of national markets, even if reciprocal, may not be the panacea. Christian Fayard says: "There must be real industrial agreements, not exchanges of markets. Criss-crossing exports among Europeans are of no value if they do not provide the opportunity to establish a European industry. We must set ourselves up in each other's countries: that is the only way to make ourselves stronger in the face of American and Japanese competitors and to learn to work together."

What is the best path to follow? That laid out by the French-German S-900 project for cellular radio. The call for tenders was issued by the French PTT and the West German Post Office at the end of 1983, and French-German consortiums have responded. Christian Fayard emphasizes: "It is a good model agreement that provides for joint development at less cost while also making room for a relative degree of competition with the final products."

It is an example which, one hopes, will be imitated. The ideal thing would be to lay out a joint project in telecommunications whose size would equal that of the Ariane project in the field of aerospace. The European telecommunications "artery" of optical fibers, mentioned above, is an example. The RNIS (integrated services digital network)--the next generation of exchanges for switching video and voice as well as data--is another. But its development is not planned until 1990. One can hope that that will not be too late.

#### EEC's Six Proposals

1. Joint establishment by the PTT administrations of medium- and long-term objectives in telecommunications.
2. Joint research and development activity that will exploit to some extent the results of the ESPRIT program.

3. Development at the Community level of technical standards for interfaces between public systems and private telematics hardware. This is an essential step for achieving homogeneity in markets and facilitating procedures for approving equipment.

4. Development, centered on the study of wide-band networks, of the transnational portion of the Community's future telecommunications infrastructure. Like the Airbus or Ariane, this joint project would make it possible to establish real ties of cooperation among European firms.

5. Development of infrastructure in the Community's least favored regions through systematic use of the most modern techniques. The Regional European Development Fund, the European Investment Bank, and the Community's new lending instrument would ensure the financing.

6. Joint action aimed at opening up that portion of the Community market for communications equipment that is dominated by government monopolies.

#### Interview With French Minister Louis Mexandeau

Louis Mexandeau comes across as the most European of the EEC's PTT ministers. In this interview with L'USINE NOUVELLE, he urges European industrialists to organize to face the Americans and Japanese.

L'USINE NOUVELLE: Does it seem to you that the French Government's will to establish a "European space in telecommunications" is well understood by your partners? Aren't you somewhat isolated in Europe?

Louis Mexandeau: I don't believe so when I consider, for example, the very positive statements by the EEC and especially the statement by Etienne Davignon. Things are accelerating at the moment: the European ministers concerned are becoming aware of the political importance of what is at stake. They all feel that it is necessary to move quickly and to adopt a more determined attitude.

You cannot say that France is isolated, since we occupy an advanced position. But it must be admitted that in Europe there is a time lag between thought and action because of sluggishness and habits. Neither can one ignore commercial or industrial traditions or a degree of social "chilliness." When it comes to intra-European alliances, our partners are afraid of having to confront employment problems. And it is just when we ought to be moving as fast as possible that those brakes are slowing down movement.

[Question] Isn't it French industry's technological lead in telecommunications that is leading you to adopt this pro-European stance and causing France's partners to hold back?

[Answer] France has no hegemonic will! There is no contradiction between our European will and our will to keep French industry strong. What I am saying about telecommunications is also what I feel about data processing. The thing that inspires us is a strong European consciousness. Today we are at a turning point. We can no longer look at industrial development solely from the national point of view. The European fight is a fight of solidarity.

Several "deadlines" are approaching, and together they form the focus around which the battle of the end of this century is being organized. They are posing new problems in research and development and will eventually pose marketing problems as well. Those "deadlines" are the spread of telephones using the TDM switching generation, optical fibers, terminals for office automation, distributed computing, and microcomputing, as well as communications satellites of the future. Those are the challenges that must be met.

Whether or not French industrialists are the leaders in a particular area does not strike me as a basic issue. In office automation, industrialists in a foreign country--Olivetti, for example--may assume that role.

Incidentally, we were the first to break away from our monopolistic position and suggest an opening up of markets. Together with the FRG, we have issued a call for tenders for supplying equipment for cellular radio. We have also opened up a market for 200,000 telephone sets to West German industry.

[Question] What are the practical ways of successfully establishing this telecommunications Europe quickly?

[Answer] We must step up our efforts to reach agreements. It is important to move fast so as to prove our successes. If there were no chance of seeing Europe become the third pole for electronics, does anyone think that non-Europeans would be showing so much interest in it?

But we cannot take the place of the industrialists. I feel that the French PTT's activity goes beyond what should be its field. European industrialists must stop their "let's pretend" and get over a degree of distrust that makes them prefer agreements with non-Europeans.

This does not mean that I am exonerating French industrialists, who are also afflicted, to a smaller degree, with the same malady.

Our industries have lived on big contracts for too long. That is the easy way. It is necessary to fight in every country. There are no small markets. European firms must learn quickly to cooperate. The world telecommunications market is currently very much a seller's market. Let them take advantage of it! We cannot be certain of finding another situation equally favorable.

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EUROPEAN AFFAIRS

EUROPEAN SATELLITE FIRMS SEEK UNIFORMITY, COMPETITIVENESS

Paris L'USINE NOUVELLE in French 28 Jun 84 pp 32-38

[Article by Marc Chabreuil: "Satellites: Time for Industrialization"]

[Text] If they want to remain competitive with the Americans, European satellite manufacturers will have to standardize their products, create a series effect and become more aggressive on export markets.

November 1984: the 12th Ariane rocket takes off from Kourou. Its nosecone contains the first French (and European) satellite sold on export markets, Arabsat 1. Designed for the Arab League, it was made with Aerospatiale as a prime contractor. A few months later, a second satellite will be launched by the Shuttle. After that? Nothing, except for the direct-TV satellite ordered by Sweden, again from Aerospatiale, which is scheduled to be placed on orbit in 1987. The Americans and Canadians have won all the other contracts for communication satellites.

The reason is that European products are too costly. "We must find a way to lower our prices by 25 percent," Hubert Curien, president of the National Center for Space Studies (CNES), stated at the last Le Bourget show. "Europe has an excess invention and development capacity in this field, but it shows a certain weakness in establishing repetitive procedures."

In spite of this, exports of French space equipment, taking into account orders from the European Space Agency (ESA), have reached FF 6.76 billion, including 4.4 billion for the Ariane rocket and 1.9 billion for telecommunications. "Our goal is to have 40 percent of export sales (and more for Ariane) by the end of this decade, i.e. at least FF 1.6 billion per year," we were told by Jean Muttin, head of the CNES industrial policy division.

Now that the commercial future of Ariane appears secure, it is in the field of telecommunications (80 percent of the world satellite market) that French firms must make the greatest effort. "For 1983-1992, this market is estimated at FF 100 billion. It breaks down into four approximately equal parts: North America where the market is growing rapidly; international organizations like Intelsat; Europe with its national, bilateral and international programs; and open export markets like China, Korea, Pakistan, South Africa, etc. As a result, 75 percent of the market can be accessed only through cooperation

with U.S. firms," we were told by Pierre Madon, director of civilian programs at the Aerospatiale ballistic and space systems division (which has close ties to Ford Aerospace). At MATRA [Mechanics, Aviation and Traction Company] people see things in a slightly different way: "Markets in non-industrialized countries tend to regress; therefore, we must penetrate the North American market," according to Claude Goumy, director of the Toulouse space center. "Since we cannot hope to beat the Americans technologically, we must have a financial approach. Especially by offering a true service to U.S. firms and making them pay for the launching and the satellite only after the latter has been successfully placed on orbit and after the first fees have been paid."

"No matter what strategy we adopt, manufacturers must obtain export business, or they will experience the start of a recession in 1986. They must become competitive and acquire a true commercial spirit," Jean Muttin said.

That will not be easy for the French space industry, the most powerful in Europe. The "big four"--MATRA, Aerospatiale, Thomson-CSF (whose space division is now called Alcatel-Thomson Space) and the European Propulsion Company (SEP)--and the 40 or so equipment manufacturers, for which space equipment rarely accounts for more than 10 percent of their sales, suffer under a triple handicap: the lack of military programs (which, in the United States, represent a market as large as the civilian sector and promote technological progress); the lack of series production, as national programs remain quite modest; and the European industrial policy which promotes the scattering of expertise and limits the series effect.

#### Too Many Large European Manufacturers

"In Europe, there are seven or eight large manufacturers where three would be more than enough," according to Claude Roche, director of the marketing department of Thomson-CSF space division. MATRA, Aerospatiale, British Aerospace, MBB [Messerschmitt-Boelkow-Blohm], Dornier and Aeritalia want to manufacture telecommunications satellite platforms, i.e. the components common to all missions, which are recurring equipment (structure, electric generator, stabilization, etc.) that can be manufactured in series. Thomson-CSF, Marconi Space System, ANT [Expansion unknown] (the former AEG Telefunken), Selenia, Spazio and Ericsson want to make the payloads (transmitters and receivers, antennas, etc.) which are different for each mission. Not to mention that British Aerospace and Aeritalia, too, ambition to become payload manufacturers. The situation is the same among equipment manufacturers: "We already had one competitor, the Italian Ferranti. But now MBB is taking up position in the same market segment. But there is no room for two sensor manufacturers," Claude Frederic, who is in charge of space products sales at SODERN [Nuclear Studies and Engineering Company], pointed out. These manufacturers, too, suffer from the lack of series: "We received orders for sensors for the Exosat scientific satellite, which were supposed to be identical to those used on Spacelab. However, following a succession of specification changes, we had to make an entirely different product for the price set in the contract," according to Claude Frederic. Yet, Crouzet noted "the desire for standardization prevailing at CNES: the data-processing system developed for the Spot remote-sensing satellite will be used on other satellites; conversely, components of the Ariane rocket calculator will be used on Spot. Despite the

fact that that equipment will change again as early as 1986, with Ariane IV." Actually, when series are made in Europe, they are small...

### Improving the Standardization Potential

"Standardization is a concept which is constantly on our minds. We must admit that we often fail because we do not have enough programs, and because they are too far apart in time. Technological progress requires changes from one satellite to the next, even if we try to keep them to a minimum," Bernard Estadieu, assistant director at the CNES Toulouse space center, explained.

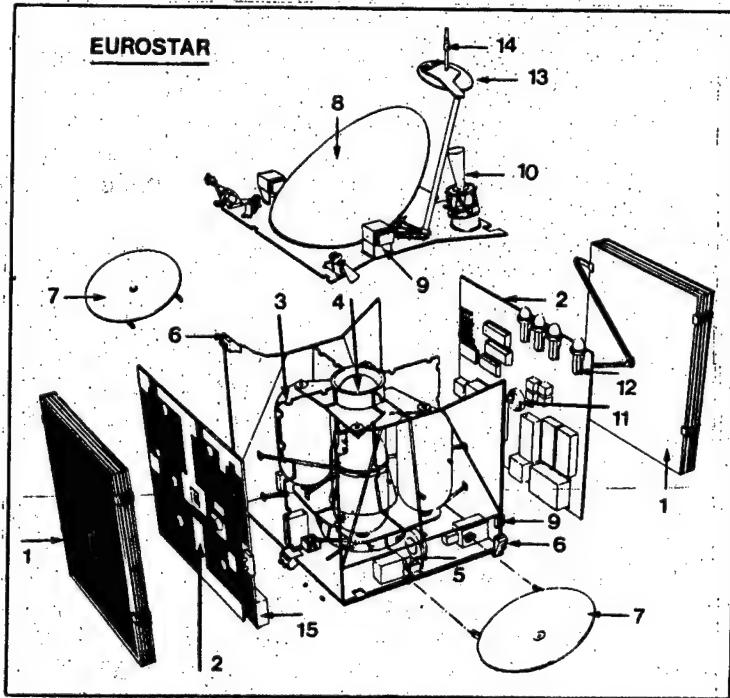
"The situation should improve. Thus, with the new launchers, which are more powerful, we shall have less weight and volume constraints on the satellites." Already, the same Thomson-CSF transponder was installed on Telecom 1 (civilian, military and intra-corporation telecommunications), TDF 1 (direct television) and Spot, three very different satellites. Another example, the Telecom 1 satellite: its platform is so similar to that of its predecessors that, for the first time, no qualification model was required. We can already speak of a miniseries.

Initially, the Europeans had tacitly shared the space market among themselves: launchers for France, manned spacecraft (of the Spacelab type) for the Germans, telecommunication satellites for the British. That did not take into account the multiplication of national telecommunication programs. And especially the rule of "just return," which provides that each country will receive a percentage of orders proportional to its participation in any given program, and therefore resulted in the creation of rival national industries. Sometimes at the expense of quality (the Ferranti inertial units were preferred to those made by SAGEM [General Electricity and Mechanics Applications Company] for Ariane, although their reliability is questionable). Sometimes even when quality is not at stake: "Some ESA members prefer buying U.S.-made connectors," Dominique Murat, in charge of marketing the Cannon line of space products, charged.

Thus, according to this rule, the Italian company BPD Difesa Spazio is manufacturing under U.S. licenses the power-propellant accelerators for Ariane III and is planning to manufacture those for Ariane IV and V; and in the same way the Swedish company Volvo (and not SEP) will probably supply the turbopumps for the future HB-60 cryogenic-fuel motor; and, in addition to the prime contractor (British Aerospace), 7 contractors and 28 subcontractors from 8 countries contributed to manufacturing the ECS European telecommunications satellites...

As a result, a French (or European) manufacturer with a personnel of 1,000 and sales of FF 1 billion finds it hard to compete with a company like Hughes (12,000 people) which sold 33 units of a single telecommunications satellite platform. Especially since such a company can manufacture 80-90 percent of a satellite, the remaining 10-20 percent being entrusted to subcontractors over which the company has full control.

There is no such thing in Europe: "The CNES and ESA do not want platform manufacturers to be prime contractors for the payload. The payload is given to



The MATRA-British Aerospace Eurostar Platform Is  
 "Performing Better" Than Its Present U.S. Counterparts

**Key:**

1. Solar panels	9. Sensors
2. Panels with payload electronics	10. Horn
3. Liquid-propellant tanks	11. Solar-panel orientation motor
4. Pressurization tank	12. Travelling-wave tube amplifiers
5. Kinetic wheel	13. Subreflector
6. Micro propulsion units	14. Telemetry/remote control antenna
7. Extendable antennas	15. Batteries
8. Main antenna	

traditional electronics manufacturers who also find subcontractors. This is one of our major weaknesses," according to Jacques Battistella, head of the marketing division at the MATRA space branch. As a result, each manufacturer adopts technical safety margins which add up and result in a heavier and larger satellite. "As prime contractors, we would like to know where the margins are. If we were in charge of overall design, and if we defined all the specifications and computed and ordered all the components, we could manufacture a more competitive satellite," according to Jacques Battistella.

Actually, MATRA is determined to expand its field of expertise: "There is a considerable amount of work to be had in new fields or products like antennas," we were told by Claude Goumy. At Aerospatiale, Lucien Trousse, director of the Cannes plant, made a more qualified statement: "We are involved especially in studies and assembly. But our systems engineering staff enables us to act as a full-fledged prime contractor with subcontractors."

As for Thomson-CSF, it is also in favor of having a single prime contractor, as long as it is... an electronics manufacturer: "Payload manufacturers should pilot the design team since they realize approximately 45 percent of a satellite; negotiations should be carried out with two parties; integration, at will. That way, we could achieve greater consistency with existing products. Not to mention that clients are often telecommunications administrations with whom we are used to deal," Claude Roche pointed out.

That leaves one problem: manufacturing capacity. And alliances among European firms (MATRA and British Aerospace as Satcom International; Aerospatiale, MBB, Thomson-CSF, ANT and ETCA [Central Technical Armament Establishment] as Eurosatellite) have improved the situation only partially. Aerospatiale alone can make only 35 percent of a satellite, including 25-30 percent as prime contractor (for Arabsat, Ford supplied 55 percent of the program and the Germans the remaining 10 percent). "By joining forces with MBB, we can achieve 45 percent, as we complement each other. We have a lot of experience in honeycomb and carbon structures, thermal control, solar generators, antenna reflectors and magnetic-bearing inertial wheels. And MBB, in propulsion, attitude control and solar panels. We share integration and prime contracting evenly between us," Pierre Madon told us. The Aerospatiale-MBB partnership, which is the world pioneer in three-axis stabilization for telecommunications satellites, thus obtained the contract for the Franco-German direct-TV satellites TDF and TV-SAT. And it could sell to Sweden a space-craft directly derived from these, Tele X.

MATRA chose to rely on the British with British Aerospace, the leading European company in space telecommunications and the prime contractor for a dozen telecommunication satellites (including five ECS: a European record) based on a single platform-design. "We provide attitude control and integration of the ECS. That is, nearly half the added value," we were told by Andre Rampillon, assistant director of the MATRA Toulouse center. That co-operation enabled him to obtain the contract for Telecom 1 (700 kg on orbit). The latter will lead to the creation of a heavier Franco-British platform (900 kg), Eurostar, which will be manufactured in series. It will be tested on the French technological telecommunications satellite Athos, Thomson being in charge of the payload. "It will be available in 1986 and will require an

investment of FF 250 million over 3 years, most of which will be provided by stockholders' equity. It will have better performances than present U.S.-made equipment," according to Claude Goumy: carbon-fiber structure, remote-control and telemetry through microprocessors, more economic piloting, simplified attitude control, lifetime increased from 7 to 10 years... "With Eurostar and the ECS-Telecom 1 platform, we can meet 80 percent of the world demand," Jacques Battistella asserted.

### 5 European Platforms Compatible With the Shuttle!

To these two products of Satcom International, and in the context of Euro-satellite, Aerospatiale opposes the Spacebus family which is suitable to meet all the potential demand: the Spacebus 100 derived from Arabsat (650-800 kg) which, according to Pierre Madon, is "ideal for export to Korea, China, Pakistan, etc.;" the Spacebus 200 (700-1,100 kg) which could be derived from the Ford Intelsat V or from an MBB satellite; and the Spacebus 300 (1,000-1,500 kg), derived from TDF 1 and the subject of much criticism. According to an Euroconsult survey, heavy satellites should account for half of the world market by the end of this decade.

With their five standard platforms that are compatible with the U.S. Shuttle (and will all have been used on flights by 1987), the Europeans may be running the risk of checking in the bud the series effect they are aiming at and "without which we shall never export," Jacques Battistella stated. It is to be feared. Yet, this is the key to the commercial success of the European space industry as, according to Pierre Madon, "the unit cost reduction when more than five units of a satellite are made is estimated at 15 to 25 percent."

By relying on competition between Franco-English and Franco-German or Franco-American industrial groups, France is increasing its chances to belong to the consortium selected after an international invitation to tender. The CNES had considered a MATRA-Aerospatiale-Thomson-CSF merger, but it appeared very unlikely that such a 100-percent French project would be accepted on export markets. For, when it comes to space, politics are nearly as important as technology. Alliances are made and unmade or adjusted to suit the client. Thus, according to Aerospatiale, "if Ford had been selected as the prime contractor for Arabsat, the Arab League would not have accepted our project." In addition, the competition between MATRA and Aerospatiale, which is strong when a contract is to be awarded, is quite relative. "We are also complementary," Lucien Trousse asserted. "We are making the thermal control and solar generator for MATRA's Telecom 1 because we are the only ones in Europe to have an engineering and design department specialized in this field. The same is true for the Spot satellite, for which we are also providing the structure, and which will be produced in a miniseries."

Already, French manufacturers' expertise is recognized in Europe and even throughout the world: thermal control through heat conductor, antenna pointing device with a precision of 0.005° and solar generators producing 6 kW at the end of their service life (Aerospatiale); on-board software, sophisticated Kevlar and carbon fiber structures, orbit and attitude control systems with a

precision of 0.01° and microprocessor control (MATRA); 250-W travelling-wave tubes (Thomson-CSF), etc. Equipment manufacturers are not to be outdone: SAGEM, whose goal it is to gain 80 percent of the spin-stabilization market for the European telecommunications satellites, is the only European company offering a 256-megabit redundant bubble memory recorder and a digital calculator with 97-percent reliability over 7 years; SAFT [Fixed Accumulators and Traction Company], which is installing 16 batteries on every Ariane launcher and exports equipment to India, is the world leader in the field of silver-hydrogen accumulators and batteries; Cannon is the only European firm to manufacture subminiaturized connectors; Souriau has no rival when it comes to umbilical connectors; Bertin made the first fiber optic device for the absolute calibration of CCD [charge-coupled device] sensors; L'Air Liquide has passed master in the art of insulating cryogenic systems... Not to mention "quality of a far higher level than that of the Americans," Pierre Madon explained.

Actually, all European satellites are assembled and tested in white rooms, which is not the case in the United States. For one year now, the Cannes facilities have owned a unique acoustic testing complex, for tests under vibrations and under vacuum, in a clean atmosphere.

There remains the problem of credibility, which was acquired in part in the context of international programs: Aerospatiale provided the structure, assembly and thermal control of the 15 Intelsat V satellites made by Ford; Thomson provided the equipment of the Intelsat II, IV and VI made by Hughes, 60 repeaters for the TDRSS [tracking and data-relay satellites systems] made by TRW (which presented Thomson with the 1980 best-subcontractor award), and equipment for the Japanese direct-TV satellites... A total of over 40 satellites.

French (and European) telecommunications satellites in orbit can be counted on the fingers of one hand, and their reliability over 7-10 years has not been demonstrated yet. But, in the next 18 months, with the launching of 2 Telecom 1, 1 TDF 1 and 2 Arabsat satellites by France, plus Marecs and ECS satellites (with a 23-percent French participation in Europe), the French space industry will have reached maturity. Besides, manufacturers are confident: space is an activity "that always provides technological drive. The policy of quality and the methods imposed by the prime contractors later on extends to all departments of the company," we were told at Crouzet. But this activity results in a financial deficit, or at best it breaks even (Aerospatiale lost millions on the Arabsat program). Because the "organizations and especially the CNES which remains the prime contractor for Ariane, Spot, etc., are exercising excessive control." Sometimes, by imposing some equipment: "We make some sensors that are five times cheaper than those they force us to use," the people at MATRA said. Often, the amount of a contract is determined more or less unilaterally. In 10 months, specifications for the HB-60 motor of the future Ariane V have changed (thrust increased by 25 tons, use as a first stage, improved reliability, etc.), while the amount of the contract dropped from FF 4.3 billion (1983 francs, contingencies included) to 4.1 billion. When the CNES tried to "sell" the Spot project to the ESA, it quoted a "dumping" price of FF 742 million. But Spot cost twice as much... If the sale had been made, who would have paid, manufacturers wonder.

## Considerable Industrial Investments

The policy of financial rigor of which firms complain is due to the fact that CNES and ESA had the ambition to export before these firms did (and in their place). In 1973, Ariane was designed to ensure the independence of Europe in space; six years later, the agencies succeeded in turning it into a rival for the Shuttle, sometimes by taking technical risks. The same approach was used for applications satellites and scientific satellites, as these projects must provide competitive spacecraft.

Another source of financial problems is that manufacturers invested considerable amounts in the past five years. Thus, since 1982 Thomson-CSF has spent FF 230-280 million per year to equip itself with an ultra-modern plant in Toulouse, a facility with 2,000 m<sup>2</sup> of white rooms and a 1,000-m<sup>2</sup> integration room on a scale with its ambitions: it can receive simultaneously... seven satellites! The Cannes facilities of Aerospatiale, whose activity was 70 percent military 3 years ago (today this is the percentage of space activities) has 3,000 m<sup>2</sup> of white rooms, including 1,000 m<sup>2</sup> for solar generators. Yet, Pierre Madon stated: "In two or three years from now, our integration rooms and prime contracting staff will be inadequate. We shall have to agree to substantial investments." Same concern at the SEP whose means are far more modest: "Since 1979, we have invested FF 10-15 million of stockholders' equity in equipment (essentially numerical control machine-tools) and as much in buildings. The result: in two years from now, we shall reach our industrial cruising production rate," we were told by Jacques Villain of the department of programs and industrial policy. As for MATRA, with its 2,150-m<sup>2</sup> integration hall and its alignment means, it just equipped itself with a centralized electronic-components supply organization that will reduce delivery delays (up to 24 months at present) and with powerful data-processing means. By coupling the Euclid computer-aided design software of MATRA-Datavision with scientific software, it is possible to predimension rapidly telecommunications satellites and their antennas. In less than 3 years, the "big four" have increased their personnel by 18 percent. A telltale sign... Like the wish expressed by Marcel Dassault Aircraft to participate in the potential Hermes European shuttle project.

In the next few months, the ESA will define a large program for the 1990's. Also, manufacturers are confident that the recent Franco-German agreement will actually result in the implementation of a military satellite program; that the Spot and Ariane programs (Ariane having secured 20-30 percent of the launching market) will accelerate; that the government will not fail to follow up on the TDF and Telecom projects; that new invitations to tender will be issued by international telecommunications organizations. Euro-satellite has every chance of being awarded the Chinese contract and selling a Spacebus 300 to the Americans (U.S. Satellite Broadcasting of General Electric). Satcom International is expecting to be awarded 6 export projects until 1987 which, together with 15 satellites or so, would pay off its Eurostar platform. "This objective should be quite easy to achieve, as manufacturers on the other side of the Atlantic are going to be swamped now that U.S. defense programs are being revived," Claude Goumy believes.

For all these reasons, French manufacturers--who still rely very much (too much?) on domestic and ESA orders--should be optimistic.

**ECONOMIC ASSESSMENT CRITICIZES NATION'S TELECOMMUNICATIONS**

Dublin IRISH INDEPENDENT in English 8 Jun 84 pp 1, 9

[Article by Frank Khan]

[Text] TELECOM EIREANN--set up to give Ireland a top-class international telecommunications system--is fast developing into another bureaucratic white elephant.

And only five months after the semi-State body took over the service, two top economists, say it should be the subject of a full investigation by the Dail.

By the "most conservative estimates" Ireland is paying "at least £100 million a year too much" for its telecommunications network.

The authors also claim that Telecom Eireann is already trying to re-write its financial rules although it was only established at the beginning of the year.

And they refer to Telecom's chairman Michael Smurfit's statement recently that the business could lose up to £60 million this year, and while it would pay £94 million to the Exchequer, it would not be in a position to pay anymore until 1990.

But the economists--Sean Barrett and Dr. Eugene Curran of Trinity College--say that Government would be illadvised to agree with Telecom's proposals.

They declare: "We show that the Irish telecommunications service has severe productivity problems and cannot sustain levels of investment in recent years."

Its high charges, they add, are a burden on the economy and the quality of service deteriorated during the first four years of the 1980-84 Accelerated Development Plan.

"The Department of Finance must look for a better deal from Telecom Eireann, not give it £95m. a year at the taxpayers' expense."

In this week's "Business and Finance" Mr. Tom Byrnes, Telecom Eireann's chief executive, does not dispute most of the economists conclusions, with the exception of the interpretation of Mr. Smurfit's comments.

But he rejects any suggestion that Telecom may be seeking to rewrite the rules.

"It's the Government which in the 1984 Budget is trying to re-write the financial rules by extracting £50m. from the company over and above the £44m. we are required to pay to service the debt transferred to Telecom Eireann.

What the chairman was saying is that this excess extraction cannot continue or Telecom Eireann is most assuredly going to be another white elephant."

The reality, he claims, is that the telephone service has become a hidden form of taxation. In the first four years of the Accelerated Development Programme, the Exchequer provided from its own resources a capital investment of £248.4m.

"We estimate that it pocketed from current operations--that is the income received from the telephone service less payment to staff and suppliers--£260m., nearly £100m. in 1983 alone," said Mr. Byrnes.

On top of that, by the end of the programme, it had received VAT of £120m. on the capital investment programme which had to be borrowed, a net take of about £130m.

After spelling out other financial realities, Mr. Byrnes said the debt which must be serviced by Telecom Eireann and repaid is substantially higher than it could have been if the levy--condemned by Mr. Smurfit--was to be continued in 1985 and beyond.

Prices would have to be increased by a "substantial amount" before Telecom would be viable. "It would mean using telephone charges as a tax to service the debt," he said.

While this might be in the national interest, it was not what Telecom Eireann was set up to do.

In a comprehensive analysis of the telecommunications service the economists point up the fact that Irish local and international telephone charges are the highest in the EEC. For instance a call made from Ireland to the US would cost double what it would in the opposite direction.

They also claim that the quality of service declined despite the investment of £934m. between 1980 and 1983. The failure rate of trunk calls rose 36 per cent also over three years.

Employment in the telecommunications service rose 50 per cent in the seven years up to 1983, they say, despite the fact that the Dargan Report had shown productivity on the Irish telephone service was only 27 per cent of the average of 15 countries.

CSO: 5540/008

PORUGAL

LISBON, PORTO AREAS TELEPHONE NETWORK EXPANSION

Lisbon DIARIO DE LISBOA in Portuguese 30 Jun 84 p 7

[Excerpts] The national telephone network has expanded to where it now includes more than 26,000 lines following the startup of eight telephone exchanges in three Lisbon councils and two in Porto.

The total investment came to 1.8 million contos, and the equipment involved was designed and produced domestically, manufactured by CENTREL.

The TLP [Telephone Workers of Lisbon and Porto] is preparing yet this year to increase the national telephone network still more by an additional 77,000 lines in Porto and Lisbon.

The secretary of state for communications presided over the startup of the telephone exchanges of Povoa de Santo Andriao and Bucelas.

The president of the CTT-TLP [General Administration of Post Offices, Telegraphs and Telephones] also spoke at the ceremony, asserting that the annual assembly rate of new telephone exchanges rose from 4 percent in 1980 to 6 percent in 1982.

The CTT-TLP president advised that 50,000 people are awaiting telephone installations.

According to the same official, the CTT has had to resort to bank credit to cover its enormous investments which in turn will have to be repaid with the company's own profits, since the state has not allocated any capital for this purpose.

The national telephone network roster includes 800,000 subscribers, and there are about 1.1 million telephone units of various kinds in Portugal.

The number of units per 100 residents has increased from 14.9 to 17.7, and the TLP is now the sixth largest Portuguese enterprise.

## The New Telephone Exchanges

Four of the new telephone exchanges have started up in areas which, until now, had been served by other exchanges which did not keep pace with the present requirements (as in Jovim in Porto, Cruz de Pau in Seixal, and Povoa de Santo Andriao and Bucelas in the Lores council).

Beginning at zero hours today, Jovim and Bucelas were able to make direct telephone contact throughout the country and abroad.

Cruz de Pau and Povoa de Santo Andriao started up simultaneously with a network installation of 7,000 lines and a final capacity of 20,000 lines; these two undertakings represent the largest investment among the group of new exchanges.

The four remaining telephone exchanges in the Lisbon council were also substantially increased in capacity.

The Norte exchange, TLP's largest in Lisbon, serves more than 40,000 subscribers, and its alteration increased the network by 6,000 lines; the work involved in the expansion program required an investment of about 600,000 contos.

In addition to Lisbon's oldest exchanges, 2,000 lines were added in Estrela.

Carnaxide, in Oeiras council, and Albarraque, in Sintra, were also benefited to the extent of 2,000 and 700 lines respectively.

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